# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX January 6, 1926 Number 1

## Prospects In Livestock Field To Be Studied At Farm Week

When Illinois livestock breeders and feeders gather at the College of Agriculture, January 18 to 22, for the annual Farmers' Week, they will devote a full share of their time to discussions on the outlook for the coming year in different lines of livestock production. At 8:30 o'clock on the morning of Tuesday, January 19, W.S. Corsa, of Whitehall, and a prominent breeder of Percheron horses and other purebred livestock, is scheduled to discuss the outlook for breeders of purebred stock, and that afternoon at 1:15 the outlook for producers of meat animals will be taken up by Charles E. Snyder, editor of the Chicago Daily Drovers Journal.

Livestock breeding problems, markets, meats and control of animal diseases are other subjects that have been listed for the two-day session of livestock breeders and feeders. During the first day of the session, W.S. Anderson, of the University of Kentucky, Lexington, will outline the results of investigations on sterility in males; G.A. Lindsey, of the college's animal breeding division, will tell of the effect of Fowler's solution on fecundity, while E.R. Frank, of the animal pathology division, and Elmer Roberts, chief of the animal breeding division, will discuss other breeding problems. F.M. Simpson, of Swift & Company, Chicago, will discuss the livestock markets of the United States, and W.E. Carroll, W.G. Kammlade, R.R. Snapp and J.L. Edmonds, respective chiefs of swine, sheep, beef cattle and horses at the agriculturalcollege, will give the results of recent investigations in their departments.

Butchering and meat cutting demonstrations, discussions on the nutritive value of meats and a wide variety of topics on the control of animal diseases are down on the program for the second day of the livestock sessions. Sleeter Bull, in charge of the college meats division, and J.H. Longwell, a member of that division, will take care of the butchering and meat cutting demonstrations, while H.H.Mitchell, chief of the college animal nutrition division, is scheduled to discuss the nutritive value of meats.

The discussions on the control of animal diseases will be handled by F.B. Morrison, acting dean of the College of Agriculture, University of Wisconsin, Madison; Dr. Robert Graham, chief of animal pathology at the college here; Dr. H.B. Raffensperger, of the federal department of agriculture, and E.A. Tunnicliff, of the college's animal pathology division.

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## Yapp And Nevens Dedicate New Dairy Cattle Book To Fraser

Another book written by staff members of the College of Agriculture has just come from the press of the publishers in the form of "Dairy Cattle". It was written by W.W. Yapp, associate chief in dairy cattle, and W.B. Nevens, assistant chief in dairy cattle feeding. Designed for vocational agriculture students and dairy farmers, the book takes up the selection, feeding and management of dairy cattle. It is dedicated to W.J. Fraser, professor of dairy farming at the college, whom the authors speak of as "our teacher, colleague and friend; a pioneer, a blazer of new trails and one of the truest friends the dairy industry has ever known."

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, Director.

# The Extension Dairyman

College of Agriculture—University of Illinois

Timely News for Farm Advisers and others from the Agricultural College, Department Station, and Extension Service

No. IX January 6, 1925 Number 1


## Farmers to Discuss Dairy Problems at Short Week

Illinois livestock breeders and feeders gather at the College of Agriculture January 19 to 22 for the annual Farmers' Week, when it offers a full week of short time to discussions on the problems for the coming year in different lines of livestock production, at 9:30 o'clock during the morning of Monday, January 19 in Gregory, on Matthews, and presidential address by President Kinnicutt and other prominent livestock, in addition to discuss the outlook for breeders of pureblood stock, that afternoon at 3 in the industrial pavilions of meat animals will be taken by Charles E. Snyder, editor of the Chicago Daily Drovers Journal.

Livestock breeding problems, marketing, pests and control of animal diseases other subjects that have been listed for two-day session of livestock breeders. During the first day of the session, W. S. Anderson, of the University extension division, will outline the results of investigations on sterility in cattle, J. A. Hickey, of the college animal breeding division, will tell of the study of Power in relation on fecundity, H. R. Kinsley of the animal pathology division, and Hugo Zobrist, editor of the Breeders Gazette, will discuss breeding problems. E. E. Stamp of the Swift & Company, Chicago, will discuss livestock marketing at the Stock Yards, and F. E. Gottschalk, W. G. Kammlade, E. E. and J. H. Kennedy, respective orbits of swine, sheep, beef cattle, and horses at agricultural college, will give the results of recent investigations in their departments.

Butchering and meat cutting demonstrations, discussions on the nutritive value of meats and a wide variety of topics on the control of animal diseases are on the program for the second day of the livestock sessions. Sheets Hall, in charge of the college meats division, and I. H. Hoegell, member of that division, will take care of the butchering and meat cutting demonstrations, while T. H. Mitchell, of the college animal nutrition division, is scheduled to discuss the nutritive value of meats.

The discussions on the control of animal diseases will be handled by T. S. Hopkins, acting dean of the College of Agriculture, University of Wisconsin, and Dr. Henry Drewes, chief of animal pathology at the college here; Dr. E. B. Hasseger, of the federal department of agriculture, and E. A. Tunnicliff, of college's animal pathology division.

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## Farm And Dairy Products Are Subjects For Bulletin

Another book written by a staff member of the College of Agriculture has come from the press of the publishers Lippincott Company of Chicago. It was written by W. T. Ware, associate chief in dairy husbandry, and W. E. Stevens, assistant professor in dairy husbandry. Designed for agricultural curriculum students and for farmers, the book takes up the selection, feeding and management of dairy

## New Features Added To Dairy Manufactures Short Course

Improved in several respects over similar courses of previous years, the annual short course in dairy manufactures at the College of Agriculture this year will be held from January 18 to 30, it is announced by A.S. Ambrose, assistant chief of dairy manufactures, who is in charge of the course. The course is designed primarily for plant superintendents, managers and experienced operators and the work has been planned to meet their requirements.

One change in the course this year is the addition of instructional work on city milk supply problems. This has been done to take care of the increasing demand for a short course in the handling of milk. The course this year also will offer two full weeks of instruction in ice cream making, whereas in former years this work has covered only a week. Butter making will be taken up in addition to city milk supply and ice cream making during the course.

Greater facilities and equipment that is more complete will be available this year for those taking the course by reason of the fact that it will be held in the college's new dairy manufacturing building, which has just recently been opened and which now houses all operations of the dairy manufactures division.

More than a score of topics including the separation of cream, the packing and marketing of butter, clarification and filtration of milk and similar problems are to be taken up in connection with the instruction on butter making and city milk supply, while the work in ice cream making will include the various phases of preparing the ice cream mix, standardization of ice cream, binders, fillers, improvers and related subjects.

An increased enrollment in the course is predicted this year, since the first week of it comes during the annual Farmers' Week at the College.

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## Rural Ministers To Have Two-Day Session During Farm Week

One of the many features of Farmers' Week, January 18 to 22, at the College of Agriculture this year will be a conference for rural ministers to be held on Wednesday and Thursday, January 20 and 21. Scheduling of the conference during the annual Farmers' Week gives the forward looking, rural minded ministers an unusual opportunity to see what the University of Illinois is doing through its College of Agriculture for the improvement of rural conditions in Illinois, R.E. Hieronymus, community adviser, said in discussing the coming conference.

"Superintendents or managing officers of the various religious bodies that are active about the campus are asked to cooperate in bringing together a group of ministers for the purpose of conferring on their mutual problems. Farm advisers also can help in this by urging the attendance at the conference of one or more of the most active ministers in their individual counties.

"Representatives of the College of Agriculture, the Smith-Hughes work, the Illinois Agricultural Association, the Illinois Home Bureau Federation and other rural agencies will take part in the discussions. Luncheons Wednesday noon at the various churches and a conference dinner Wednesday evening will give an opportunity for the ministers to become familiar with the program of the religious workers about the university campus."

## New Features Added To Dairy Manufactures Short Course

Improved in several respects over similar courses of previous years, the short course in dairy manufactures at the College of Agriculture this year is to hold from January 18 to 30. It is announced by A.S. Andrews, assistant in dairy manufactures, who is in charge of the course. The course is designed primarily for plant superintendents, managers and experienced operators and the work is planned to meet their requirements.

The change in the course this year is the addition of instructional work on milk supply problems. This has been done to take care of the increasing demand for a short course in the handling of milk. The course this year also will include two full weeks of instruction in ice cream making, whereas in former years this work covered only a week. Butter making will be taken up in addition to milk supply and ice cream making during the course.

Greater facilities and equipment that is more complete will be available for those taking the course by reason of the fact that it will be held in the new dairy manufacturing building, which has just recently been opened on the Urbana all purposes of the dairy manufactures division.

More than a score of topics including the separation of cream, the making and keeping of butter, pasteurization and filtration of milk and similar problems will be taken up in connection with the instruction on butter making and dairy milk while the work in ice cream making will include the various phases of production of the ice cream mix, standardization of the cream, flavors, fillers, emulsifiers and stabilizers.

An increased enrollment in the course is expected this year, since the week of the course during the annual Farmers' Week at the College.

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## Rural Ministers To Meet Tuesday Session During Farm Week

One of the many features of Farmers' Week, January 18 to 23, at the College of Agriculture this year will be a conference for rural ministers to be held on Tuesday and Thursday, January 20 and 21. Responsibility of the conference during the Farmers' Week gives the forward looking, rural minded ministers an unusual opportunity to see what the University of Illinois is doing through the College of Agriculture for the improvement of rural conditions in Illinois, R.E. Hieronymus, faculty adviser, said in discussing the coming conference.

"Superintendents or managing officers of the various religious bodies that have about the campus are asked to cooperate in bringing together a group of men for the purpose of conferring on short rural problems. Farm advisers are helpful in this by urging the attendance at the conference of one or more of their active ministers in their individual counties.

"Representatives of the College of Agriculture, the Rural Life Bureau, the Agricultural Association, the Illinois Farm Bureau Federation and other agencies will take part in the discussions. Luncheons Wednesday noon at the campus and a conference dinner Wednesday evening will give an opportunity ministers to become familiar with the program of the College of Agriculture and the University campus."

## Tribute Paid To Dean Mumford's Livestock Classes And Grades

Tribute for the contribution which he made to the livestock industry of the country by his early work in standardizing market classes and grades of livestock is paid to H. W. Mumford, dean of the College of Agriculture, in a report on tentative market classes and grades for slaughter cattle which has just recently been received at the college from the bureau of agricultural economics, United States Department of Agriculture. "Nearly a quarter of a century ago, Professor Herbert W. Mumford did the pioneering work in standardizing market classes and grades of livestock", the report points out.

At the time he did the work, Dean Mumford was head of the college animal husbandry department, but the inspiration for it had come several years previous when he was selling livestock of his own from a farm in Michigan. No standard classes and grades of livestock existed at that time to which a farmer had access and on numerous occasions Dean Mumford felt that he did not get full value for his stock because the buyers with whom he bargained were inclined to place his stock in a class and grade which was lower than the one in which it rightfully belonged.

The federal report received here relates how Professor Mumford did a large amount of careful investigational and research work at Chicago and other livestock markets and then in 1902 prepared a bulletin entitled, "Market Classes and Grades of Livestock With Suggestions for Interpreting Market Quotations". When the U. S. bureau of markets, now the bureau of agricultural economics of the federal department of agriculture, inaugurated its market reporting service on livestock at Chicago in 1918, the market classes and grades of cattle as described in Professor Mumford's bulletin were used as the basis for formulating a tentative classification of standard market classes and grades of cattle for use in the market reporting work of the bureau. The tentative classification adopted at that time was the result of a conference, held in the Stock Yards Inn at the Chicago Union Stock Yards, in which representatives of the packers, the Chicago Livestock Exchange, various state agricultural colleges, several trade journals and the former bureau of markets all took an active part.

Professor Mumford's standard classes and grades of cattle were featured in an exhibit which the college made at the St. Louis World's Fair in 1904. The exhibit was commended as one of the best educational displays on the grounds. Similar exhibits later were made at the Chicago International Livestock Exposition.

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## New Dairy Building To Be Attraction During Farmers' Week

Dairymen who attend the annual Farmers' Week at the College of Agriculture, January 18 to 22, will find an added attraction this year in the form of the new dairy manufactures building on the college campus. All operations of the dairy manufactures division of the college have now been moved to this building and it, along with several other new ones on the grounds, will be open for the inspection of Farmers' Week visitors. Part of the sessions on the two-day program which has been arranged for dairymen also will be held in this building.

New facts on dairy cattle breeding and feeding, together with pointers on the testing of milk and cream and discussions on the marketing of cream and whole milk, are among the things which are in store for dairymen who attend the conclave of farmers and their wives.

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX | January 13, 1926 | Number 2

## Broad Program Awaits Visitors At Annual Farmers' Week

Agricultural interests of the state will take possession of the University of Illinois campus next Monday morning for the annual Farmers' Week which opens formally at 1:30 o'clock in the afternoon and which is expected to draw more than 1,000 farmers from all parts of the state by the time the program is completed Friday night. An educational program covering a wide range of farm problems and the annual meeting of the Illinois Agricultural Association are expected to make this year's conclave of the state's farmers a record one.

The present agricultural situation will get early attention, Dr. George F. Warren, well known professor of agricultural economics and farm management at Cornell University, Ithaca, N. Y., being scheduled to discuss this question immediately after H. W. Mumford, dean of the agricultural college, has made the opening remarks of the week. Dr. Charles L. Stewart, chief of agricultural economics in the experiment station of the college, will follow on the program to discuss price determination and then the afternoon program will be concluded with a round-table discussion led by Dr. Warren.

Dr. Lena K. Sadler, of the institute of research and diagnosis, Chicago, and Dr. C. F. Hottes, consulting plant physiologist of the college, will be the Monday evening speakers on the respective subjects, "Little Foxes that Nibble at the Vines of Health and Happiness", and "The Conservation of our Parks and Natural Scenery". Tuesday night, Dr. R. A. Pearson, president of Iowa State College, Ames, will discuss, "The New Era in Agriculture"; Wednesday afternoon and night students of the agricultural college will stage a "little international" livestock exposition, and Thursday night a farmers' banquet will be held at which beef from Laddie Fairfax, the college's prize steer, will be served.

Problems of interest and importance to all farmers of the state will be taken up in the special sessions on livestock, soils and crops, poultry, dairying, farm organization and management, farm mechanics, horticulture and beekeeping which have been scheduled for Tuesday and Wednesday. Wednesday the Illinois Seed Grain Show will give Illinois new "corn kings" in both the adult and junior divisions. Home economics extension workers of the state will open their annual conference on Tuesday morning and hold sessions through Friday afternoon; a rural conference of ministers will be held Wednesday and Thursday, and members of the Illinois Guernsey Breeders' Association also will meet.

W. M. Jardine, secretary of agriculture, will speak at a luncheon to be held Thursday noon by the Illinois Agricultural Association in the stock judging pavilion on the college campus, while Frank O. Lowden, former governor of Illinois, will be the speaker at a similar meeting to be held Friday noon.

Reduced rates of one way fare and a half for the round trip to Champaign-Urbana are being offered by practically all railroads in the state.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

## Forced Laying Leads To Poorer Hatches, Henderson Says

Pullets that are forced for winter egg production will not produce as high a percentage of vigorous chicks as old hens that are not forced, according to D. C. Henderson, of the poultry division, College of Agriculture. Late molting hens, which are the best for breeding purposes, should be allowed to rest during the winter, because this is the period when they are renewing their feathers and rebuilding the fat and flesh which apparently are important in the production of hatching eggs.

"Heavy grain feeding is one of the best means of increasing the body weight of hens that are to be used as breeders. Mash should be kept before them at all times, even though the liberal grain feeding will tend to cut down the amount of mash that will be eaten. This will tend to keep the hens gaining in weight and put them in good condition for the hatching season. Egg production should not be expected, however, before the time of saving eggs in the spring.

"Proper housing during the winter is especially essential with breeding hens, as the late molting ones that shed feathers rapidly are often practically naked for a time and need to be kept warm.

"As in the case of breeding males, exercise on the open range should be encouraged for the hens, especially on bright, sunny winter days. Plenty of exercise sharpens the appetite of the hens and makes them eat heartily. Direct sunlight also seems to be an important factor in the production of vigorous chicks."

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## Beat Former Gains Made By His Pigs By Using Sanitation

Swine sanitation enabled Charles H. Snyder, president of the Brown County Farm Bureau, to fatten his pigs faster this past year than he has ever been able to before, according to a report which has been made to the College of Agriculture on the swine sanitation demonstration which he conducted on his farm. Like several hundred other farmers, Snyder cooperated with the college and Farm Adviser W. P. Miller, during the past year in demonstrating the merits of the swine sanitation system in economical and profitable pork production.

Shotes which he raised under the sanitation plan gained an average of 2.2 pounds daily a pig from the time that they were turned into a corn field in the fall until they were taken out about two months later, whereas one and a half pounds daily a head is the best that he has ever had pigs on full feed to gain before, he reported. During the 58 days that the sanitation shotes were in the corn field they grew from a weight of 72 pounds each to a weight of 199½ pounds. Beside the corn field, they had free access to tankage.

"Snyder had a farm which was badly infested with worm eggs and with the germs of necrotic enteritis", E.T. Robbins, livestock extension specialist of the college, who has charge of the sanitation demonstrations, said. "Consequently, he had been accustomed to losing 30 to 40 per cent of his pigs each summer. This past year with sanitation his 14 sows saved 98 pigs at farrowing time and he still had 96 in October. He states that this average of seven pigs a litter is three more a litter at the age of four months than he was accustomed to raising in the old way."

## Stiff Contest Promised for "Corn King" Title of The State

Competition among Illinois farmers at the annual Illinois Seed Grain Show for the "corn king" title of the state will be the keenest of years, judging from the record number of entries which have been made in the show. Approximately 500 samples of corn and other grains from 55 different counties have been entered for a share of the $800 in prize money, it is announced by J.C. Hackleman, crops extension specialist of the College of Agriculture, who has charge of the show. It will be held during the annual Farmers' Week at the college, January 18 to 22.

The show this year provides classes for boys' and girls' club members and many of the 1,166 farm youngsters of the state who raised utility type corn as their club project during the past year will make a bid for the honor of being the first junior "corn king" to be selected for the state. Of the $800 in prize money which is being offered by the Illinois Bankers' Association, $300 will be distributed in the junior classes and $500 in the adult section.

Of the total entries which have been made in the show, 334 come from the central part of the state, 105 from the northern section and 45 from the southern.

Last year's "corn king", Dean Hoblit, of Atlanta, is competing for the honor again this year.

Judges of the show this year will be J.L. McKeighan, Yates City, and C. C. Chapman, superintendent of crop experiment fields at the agricultural college. These two will be assisted by Benjamin Koehler, crop pathologist, and George H. Dungan, assistant chief of crop production, who will read the germination test of the corn.

A grain judges' school will be held again this year in connection with the show and those who successfully complete the work of the school will be qualified to act as accredited grain judges. Farmers who have qualified as accredited grain judges at former schools and staff members of the agricultural college will give the instruction. The group of farmers includes I.E. Wilson, Pekin; William Webb, Joliet; J.L. McKeighan, Yates City; O.J. Sommer, Pekin; I.D. Heckman, Cerro Gordo; A.A. Hill, Decatur, and J.R. Rice, Boody.

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## Limestone Adds Ton To Yields of Alfalfa Hay At Joliet

Alfalfa hay yields on the soil experiment field which the experiment station of the College of Agriculture maintains near Joliet were swelled one ton an acre during the past season by liming the land, while the use of rock phosphate in addition to the limestone added another ton and a half to the acre yields of this legume, it is announced by H.J. Snider, assistant chief of the college's soil experiment fields. Only about one ton of alfalfa hay an acre was produced by land that had been treated only with stable manure or with sweet clover green manure. Use of limestone, however, in addition to one or the other of the manures doubled this yield and when rock phosphate was used in addition to limestone and manure, the yield was further increased to three and a half tons an acre. Alfalfa on the field is grown in a rotation of wheat, alfalfa, corn, corn, oats and clover, the alfalfa staying in one place for six years and the other crops rotating around once. This past year, the alfalfa was cut three times and produced good yields at each cutting, according to Snider.

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Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX | January 20, 1926 | Number 3

## Suggests Use of Caution In Making Long-Time Farm Investments

Caution in making long-time investments, economy in the use of the present high-priced labor, restricted buying until adjustment between farm prices and retail prices takes place and a careful watch on cycles in livestock prices were urged upon Illinois farmers by Dr. G. F. Warren, professor of agricultural economics and farm management at Cornell University, Ithaca, N.Y., in the opening address before the annual Farmers' Week at the College of Agriculture. He spoke on "The Agricultural Situation" and stressed methods of adjusting farming to present conditions.

It is wise for farmers to be careful about making investments at prices very much above the pre-war level, unless these investments will pay for themselves quickly, Dr. Warren cautioned. Just now the abundant supply of money is expressing itself in one of the greatest stock market and city real estate booms in history, but there is a strong possibility that considerable of the gold supply will later return to Europe and that prices may decline, he pointed out. If a barn is to be built, it will be well to count two depreciations, one for probable decline in prices and one for wear, he added.

A day's labor is now worth more in corn or hogs than ever before and this means that the farmer must save labor more carefully than ever before, Dr. Warren continued. There may be serious periods of unemployment but whenever men work we may expect wages to be high, just as was the case for years after the Civil War. Labor saving devices and labor saving plans, therefore, require more attention now than ever before, he said.

"High wages have made the disparity between farm prices and retail prices very great and until adjustment in prices occurs, the only thing for the farmer to do is to buy as little as possible. This means more gardens, more home butchering, more canning of fruits and vegetables and more repair of machinery at home. That portion of the product that is used at home as a substitute for purchased food is worth retail prices rather than farm prices."

In discussing the cycles of high and low prices for cattle, horses, hogs, sheep and eggs, Dr. Warren pointed out that the number of colts now being raised would maintain about half the present horse and mule supply and that if more than half the present number are needed there will be a shortage and high prices after the present animals have died. Hogs have had a year of fairly good prices and there is danger that too many will be raised next spring or, if not then, at least by the following year. On the other hand the scarcity of hogs which has pushed up the price of them has decreased the demand for corn and lowered the price of it, he said.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

## Spring Wheat Offers One Way To Bridge Over Failures Of Other Crops

Spring wheat planting offers one way out of what is probably the most unusual crop situation that can be found in the records of Illinois, according to Dr. W. L. Burlison, head of the agronomy department, College of Agriculture. Dry weather last summer cut the acreage of red clover and paved the way for a shortage of this crop; the soybean seed crop of the past season was pretty largely a failure because of the great difficulty in harvesting the seed in the face of the wet season, while as for wheat a normal crop was not planted last fall because of the bad weather conditions and furthermore what was planted is now reported by the state statistician, A.J. Surratt, Springfield, to be in the poorest condition on record with some counties having not more than half a crop, Dr. Burlison said.

"We are face to face then with what to plant on the acreage left vacant by the failure of these crops. One consideration is spring wheat. This crop does best in cool climates and northern Illinois can afford to seed a larger acreage of spring wheat than it has put in within the last few years. Counties north of a line connecting the southern boundaries of Kankakee and Mercer counties are within the spring wheat zone.

"Counties south of this line and north of a line drawn between the southern boundaries of Champaign and Adams counties are generally considered out of the zone of spring wheat production, but even in these counties there is likely to be a large acreage of spring wheat planted this year. Some spring wheat also may be planted in localities in the southern part of central Illinois.

"In tests conducted by the college in both DeKalb county for northern Illinois and in Champaign county for central Illinois, Marquis spring wheat has given the best results, indicating that it is one of the best, if not the best, variety. Durum, Red Fife and Blue Stem also have given fairly good yields."

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## Annual Meet Of Illinois Florists To Open January 25 At U. Of I.

An annual business session of the Illinois State Florists' Association and a banquet by the organization are among the attractions which have been listed for the third annual Florists' Week which will be observed for four days beginning Monday, January 25, at the College of Agriculture, it is announced by H.B. Dorner, chief of floriculture. The program for the week is designed to be of interest to both the grower and retailer.

The first two days will be devoted entirely to problems of interest to wholesale and retail growers and the close of these sessions will be marked by the annual banquet of the florists on Tuesday night. The following morning the florists will go into their annual business session which will continue until noon and then for the next day and half the program will be limited to demonstration work in floral decoration and to subjects that are of particular interest to the retailer.

No registration fees will be charged and the sessions will be open to both employees and employers.

## Outlines Plan Whereby Problem Of Crop Surpluses Can Be Solved

Pointing out that crop surpluses need not be allowed to depress prices unduly for farmers of this country, Dr. Charles L. Stewart, chief of agricultural economics in the experiment station of the College of Agriculture, outlined a plan before the annual Farmers' Week at the college whereby the problem of surpluses can be solved. He stressed the point that exportable surpluses keep this country nationally independent of foreign food supplies and then pointed out that there are two essential considerations involved in solving the problem brought up by these surpluses. One of these considerations is better alignment between the cost of producing crops and the price which the farmer receives for them and the other consideration is for exporting countries to unite in applying practical standards for restraining production of supplies for the world market, he said.

As for a better alignment between costs and prices there is nothing better in sight at present than the bills now before congress providing for export bounties paid out of import tariff duties, while restraint of production is a problem for many nations to handle concertedly and not for any one nation to impose upon its own producers except in consideration of corresponding action by other nations, he continued.

"No other country having an important volume of exports has done as much as the United States to raise the production and marketing costs which must be met before its farm products reach the world market where all grain of the same grade commands the same price," Dr. Stewart said in discussing the question of better alignment between costs and prices. "Wage scales resulting from tight immigration walls not only have a reflection in high farm wages but in higher prices of goods and services which farmers need to buy. Tariff protection has tended still further to raise the cost of producing farm products."

In taking up the question of restraint of production, Dr. Stewart pointed out that if American wheat producers beat a retreat from the field of international competition, as some have advocated, much of the ground retreated from will have to be retaken, because growth of population is bringing dependence of the American people upon foreign wheat to within a very few years, probably before 1940.

Continuing Dr. Stewart said, "National prices above world prices already are being brought about for foodstuffs. European importing countries are doing this, using import tariffs to raise prices to the level of tariff walls, thereby restricting the market for wheat from the United States.

"Wheat exporting countries can raise their domestic wheat prices above the world level by means of domestic artificial scarcity. To this end a special farmers' export corporation can be devised or existing exporters can be offered bounties to stimulate their competition. In either case the result should be to push the domestic price of wheat above the price abroad.

"In bolstering up their own prices, however, both importing and exporting countries tend to depress the world price level. Exporting countries may need to take steps to prevent too low a world price."

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX January 27, 1926 Number 4

## Strong Program And Larger Crowds Make Farm Week A Success

A strong program that was heard by a third more people than was the case last year made the recent Farmers' Week at the College of Agriculture a success in every respect, according to a review of the event by H. W. Mumford, dean of the college. The program that was presented during the first three days of the week was as strong as any that has ever been given at any previous Farmers' Week, while the annual meeting of the Illinois Agricultural Association and the home economics conferences during the latter part of the week served to round out the event in a highly satisfactory manner.

"Attendance at some of the sessions during the week was near the 1,500 mark. In the home economics sessions, which ran throughout the week, there was an actual registration of 410, while it is impossible to say just how many men were present because many were here for the week who did not register. All organized counties in the state and in addition 17 unorganized counties were represented in the home economics sessions.

"Keen interest was shown by all those who attended the meetings. In the home economics sessions, especially, an unusual response to the program was reported. The present agricultural situation, of course, heightened the interest in the luncheon talks of Secretary Jardine and Former Governor Lowden and made these two addresses the high spots of the week.

"Some idea of the response to the educational program staged during the first three days of the week by the agricultural college can be gained from the fact that already four men of mature years who attended the past Farmers' Week have expressed their intentions of enrolling in the college to take regular instruction.

"All agricultural interests of the state were represented during the week. There was something for the livestock men, the poultrymen, the grain grower, the orchardist, the beekeeper, the gardener, the dairyman, the home economics and the agricultural extension worker, the rural minister, the local community leader and the members of the various agricultural organizations within the state. Their response to the program which was presented and the keen interest which was shown throughout the meeting stamps the week as a profitable one for all concerned.

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## Agricultural Extension Workers To Hold Third Annual School

Economics, leadership, health, letter writing and salesmanship share places on the program for the third annual agricultural extension school which the College of Agriculture will hold February 1 to 5 for farm advisers and other extension workers of the state.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

## Seed Treatment Effective Against Two Of The Corn Root Rots

Seed treatment has proved effective against two of the corn root rot diseases, the diplodia fungus and the wheat scab mold, and when seed corn that was infected with these two diseases was treated with certain compounds the average increase in the yield was about 15 bushels an acre in each case, according to George H. Dungan, assistant chief of crop production at the College of Agriculture. Such promising results have not been obtained, however, by treating seed that is infected with other of the corn root rot organisms, he said. Experiments with seed treatment have been conducted in a number of places in Illinois during the past five years.

Substances that have proved most promising as seed treatment materials are for the most part classed as organic mercury compounds. Some have been prepared in the form of dusts to be mixed with the seed corn, while others have been used as solutions in which the corn is soaked. These materials are particularly valuable as seed treatment agents because of their penetrating properties.

"The yield from seed infected with fusarium moniliforme and the yield from seed susceptible to scutellum rot was not increased by seed treatment." Only in rare instances was the yield from cephalosporium infected seed improved. The treatment of nearly disease free seed was more often slightly harmful to the yield than it was beneficial.

"It should be emphasized that even though the treatment of diplodia infected seed and seed infected with the wheat scab mold increased the yield greatly, the treatment did not cause such infected seed to yield as well as untreated, nearly disease free seed. Seed treatment, therefore, may never prove of importance except when it is impossible to get nearly disease free seed."

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## New Compound May Give Better Control Of Sheep Stomach Worms

Experiments being conducted at the College of Agriculture indicate that a new compound known as carbontetrachloride will prove 100 per cent effective in the treatment of sheep and lambs for stomach worms, one of the most serious parasites of this class of livestock, W. G. Kammlade, assistant chief of sheep husbandry, today told livestock men at the recent annual Farmers' Week of the college. The new compound cannot be generally recommended, however, until further tests are made as to the proper dosage for sheep and lambs of various ages and weights, he said.

In the experiments, the new compound has been used in comparison with the widely used copper sulphate, or bluestone, treatment. The bluestone treatment consists of drenching lambs with a one per cent solution at more or less regular intervals during the summer pasture season, while the carbontetrachloride was administered in doses of five cubic centimeters with one ounce of epsom salts in a gelatin capsule.

Twenty-six lambs were used in the experiment and after each treatment some of them were killed and examined to determine the effectiveness of the two treatments. These post-mortem examinations showed some live parasites in lambs treated with the bluestone solution, but no live worms were found in any of the lambs treated with the carbontetrachloride.

## Much Grain Wasted By Inefficient Threshing Machine Operation

Illinois farmers lose 2,856,000 bushels of their small grain crop every year through inefficient threshing machine operation according to figures cited by I. P. Blauser, of the farm mechanics department, College of Agriculture. The state produces annually about 210,000,000 bushels of small grains and tests on threshing machines in different parts of the state have shown that an average of 1.36 per cent of this crop is lost in threshing. Proper adjustment of threshing machines and better feeding alone would reduce this loss one-half or even more.

Seventy-three machines were tested and among the common causes for losses of grain were: concaves too low or not enough concaves; cylinder speed too low or too high; heavy or poor feeding; too much wind or improperly directed wind; tailings board too low; sieve adjusted too fine, and insufficient power. Large bundles also cause a loss because the machine is generally fed too heavy, the grain does not cure out as readily and the straw is not spread out as in the case of small bundles.

During the tests it was found that the size of the bundles varied from 25 inches to 34 inches in circumference. A bundle 27 inches in circumference is a fair average and it cures readily, handles and threshes easily and uses but very little more twine than larger bundles in tying the same amount of grain.

Suggestions which he made for efficient threshing machine operation were: study the manufacturer's literature and instructions carefully and then follow them to the best of your ability; always have enough power with close speed regulation; run the cylinder at rated speed; don't guess at the speed, use a speed counter; set the machine level by using a level; use as few concaves as possible and set as low as consistent with good threshing; it is better to use two concaves clear up than clear down; keep the cylinder teeth centered between the concave teeth; do not use badly worn cylinder or concave teeth; use enough wind to keep the chaff floating; avoid tailing clean grain; adjust the self feeder for the condition of the grain; insist that pitchers put the bundles in heads first and heads to butts; keep belts tight and clean, and lubricate the machine properly.

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## Says Farm Orchards Are Neglected Because They Are Too Large

Farm orchards are neglected because they are too large and consequently take up too much time for spraying, pruning and other necessary orchard operations, in the opinion of W. S. Brock, assistant chief of systematic pomology at the College of Agriculture. An orchard of 25 trees is large enough and with the information that is given in Circular No. 277 of the college experiment station, which tells how to mix and apply spraying materials, and with a gasoline driven spraying outfit any farm orchard of this size can be made to produce fruit economically and without fear of neglecting other farm operations, he said.

An orchard of 25 trees can be sprayed with a small power outfit in one hour or pruned in one day by two men. For good results the orchard should be sprayed three times each year. The first spray should be put on when the trees are dormant, the second when the petals have fallen and the third about July 10. The total cost of these sprays, including labor, need not exceed 40 cents a tree. The pruning, if done annually, will cost 25 cents a tree.

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX February 3, 1926 Number 5




## Illinois Again Leads Field In Ton Litter Work With 122

A bigger percentage of the Illinois litters of pigs which were entered in the race for ton litter honors succeeded in getting under the wire this past year than was the case in 1924 and consequently Illinois again led all other states in the total number of ton litters for the third consecutive year, it was announced today by W. H. Smith, state leader of farm advisers at the College of Agriculture, who has charge of this project. Of the 430 litters which were enrolled in the project last spring, 122 of them in 45 different counties made the required weight of a ton in 180 days. This percentage of successful litters is a shade more than seven per cent above the percentage for 1924. For the third year, Sangamon county again topped all other counties with 22 ton litters to her credit, while Bureau county was second with 11 and Douglas third with seven. Illinois not only produced the largest number of litters of any state but also set a new world's record weight for a single litter when one of the Illinois contestants, W. T. Rawleigh, Freeport, put 4,789 pounds of pork on a single litter in 180 days.

The increase in the percentage of litters which made the goal this year is attributed to more efficient methods which were followed by the owners and to the more satisfactory ration which existed between corn and hog prices during the past year. High corn prices during 1924 kept many farmers from pushing their hogs along on full feed, although reports show that every litter that made the ton weight returned a profit above feed costs. This past year financial reports on all litters were far more satisfactory than last year.

Results of the ton litter work in Illinois for the past year furnish an unrefutable argument in support of the use of good blood in the production of market hogs. In addition, the project, which is conducted by the college in cooperation with farm advisers of the state, served to demonstrate the worth of proper feeding and the right kind of management in economical pork production. A summary of the breeding methods followed by the owners of the 122 ton litters shows that 95, or almost 78 per cent, of them were purebred, 16 were sired by purebred boars and out of high grade sows, seven of them were grade and the remaining four cross bred. Of the 268 ton litters which have been produced in Illinois during the past three years only 16 of them have been grade.

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## Circular Stresses Small Cost Of Simple Water Systems

A belief on the part of many farm people that a large outlay of cash is needed to get running water into the house is largely responsible for the small proportion of farm homes which have modern conveniences of this kind, according to a new circular entitled, "Water and Plumbing Systems for Farm Homes", which the College of Agriculture has just published for free distribution to interested persons. It is true that complete and elaborate systems may cost several hundred dollars, but it is not generally known that simple systems can be installed at relatively small cost, the circular points out. It adds that no type of equipment for farm homes is needed more than a system of plumbing and water under pressure.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. McKrosd, Director

## New Curing Formula Produces Bacon Like That Of Packers

A new bacon-curing formula announced by the meats division of the College of Agriculture does away with the excessive salty condition of ordinary farm-made bacon and makes it possible for the farmer to get a product which compares favorably with the best grade of bacon made by the large packing houses, according to Sleeter Bull, in charge of the division. In keeping with its name - "box method" - the new cure requires a water-tight box of hardwood, or else one of soft wood lined with galvanized iron. The box should be fitted with a lid which goes down inside instead of resting on the top. The length and width of the box is determined by the size of the bacon bellies which are to go into it, while the height depends upon the number of bellies which are to be cured at one time.

For each 100 pounds of meat the curing recipe calls for three pounds of salt, one and three-fourths pounds of sugar and five ounces of saltpeter. From this point, Bull gives the following directions for curing bacon under the new method:

"The curing ingredients should be mixed thoroughly and the bacon bellies rubbed with the mixture. They are then packed into the box, skin side down, and the salt mixture sprinkled on them as evenly as possible. The top piece in the box should go in skin side up. Any spaces at the end or side may be packed with jowls.

"The lid should be placed inside the box and weighted down with heavy weights and in a few days the meat should be covered with the liquid, or juice, from the meat. If it is not, more weights should be added. No water should be added and there should be no large empty spaces in the box. The meat is allowed to remain without overhauling for 21 to 25 days for average sized bellies weighing around ten pounds and should then be removed and soaked for an hour in lukewarm water. It can then be scrubbed and hung in the smoke house to dry.

"The smoking should be done over a cool fire of hardwood, such as green hickory, apple or maple. Corn cobs, smothered with hardwood sawdust, are fairly satisfactory. Pine wood or sawdust should be avoided, as it will give the meat a resinous flavor and make it black and sooty. When being smoked, the meat should hang so that none of the pieces touch and it should be far enough away from the fire - six to eight feet - so that it will not get too warm. The length of time necessary for smoking depends upon the temperature, intensity of the smoke and the flavor desired. The best temperature is around 120 degrees Fahrenheit. When the smoking is over the meat should have a dark mahogany color. It should take at least 24 hours, and sometimes considerably longer, to get this color."

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## Mass Selection Of Seed Corn Is Rated Above Ear-Row Plan

Mass selection of seed corn, which simply involves the picking of seed ears from the standing stalk in the field, is just as effective in maintaining an ordinary variety of corn at a high level of production as the more complicated and more expensive method required in pedigree ear-row breeding, according to results of a ten-year comparison made between these two methods by plant breeders at the experiment station of the College of Agriculture. Results of the comparison are published in a new bulletin entitled, "An Experiment In Selecting Corn for Yield by the Method of the Ear-Row Breeding Plot".

## Twenty-Three Dairymen Honored By 500 Pound Fat Club

Memberships in the Illinois 500 Pound Butterfat Cow Club, accompanied by a gold medal, have been awarded to 23 Illinois dairymen in ten different counties as a reward for getting a production of a quarter of a ton or more of butterfat out of one or more cows in their herds last year, it has been announced by C. S. Rhode, dairy extension specialist of the College of Agriculture, who has charge of the club. These 23 dairymen are the owners of 41 cows which met the requirements for membership in the club.

The club was started for the first time last year by the agricultural college to demonstrate the merits of good breeding, proper feeding and the right kind of management in efficient and profitable milk and butterfat production. This purpose has been accomplished, for in watching their cows and feeding for higher milk production, the owners of these 41 medal winners have been impressed with the importance of regularity in management, balanced feeding and good cows, Rhode said. Each of these cows has produced milk and butterfat valued all the way from $240 to more than $300 and interest in the club will be stronger during the coming year than it has during the past 12 months, he said.

H. W. Bischoff & Sons, Lockport, and W. A. Rogers, Lisle, DuPage county, were the only two dairymen who had as many as four medal winners, but Rock River Farm, Byron, and Arthur D. Cornue, Hebron, each succeeded in getting three cows under the wire for a membership. Eight different dairymen, including George Faulhaber, Downers' Grove; P. A. Lauer, Sublette; J. E. Simmons, Jr., Prairie City; Ernest Kuppersmith, Warren; W. R. Angle, Dakota; John R. Logan, Seward; the Illinois State Penitentiary, Joliet, and William Welch, McLean, each had two medal winners. Eleven different dairymen each had one cow among the high producers. These included Fredrickson & Nystrom Brothers, Lockport; W. H. Gardner, Solon Mills; W.T. Rawleigh, Freeport; Hyde Park Farm, Hinsdale; Guy Fuller, Plainfield; R. W. Stewart, Hebron; Fred Converse, Round Lake; August Teske, Beecher; James Eastman, Oregon; Ray E. Meyer, LaSalle, and W. C. Wittmus, Alden.

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## Disease Fighters Gain On Bacillary White Diarrhea

Veterinary forces of the state department of agriculture and the College of Agriculture have scored their first victory in the fight to rid Illinois poultry flocks of bacillary white diarrhea. Two flock owners, Mrs. John H. Schwengel of near Champaign, and A. L. Leistman, Mahomet, have just received official certificates from Dr. F. A. Laird, state veterinarian, certifying that their chickens are officially accredited by the state department of agriculture as free from the disease, the most dreaded of all baby chick ailments. Mrs. Schwengel, whose flock was accredited first, keeps about 350 purebred Barred Plymouth Rocks, while Leistman has a flock of 120 Barred Rocks.

Hatching eggs are the chief avenue through which bacillary white diarrhea is spread and consequently the most effective method of checking it is to detect its presence in mature breeding stock and get rid of the reactors. This is done by means of a blood test made by the animal pathology and hygiene division of the agricultural college. Flocks which successfully pass two successive annual or three successive semi-annual physical examinations and blood tests and which are maintained under sanitary conditions are accredited by the state department of agriculture. Local veterinarians work with the state department of agriculture and the agricultural college in carrying out the test.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX February 10, 1926 Number 6


## Worst Red Clover Seed In Heavy Imports Comes From Italy

Of all the millions of pounds of red clover seed that are imported into the United States from foreign countries, that coming from Italy is the poorest, according to tests made by the experiment station of the College of Agriculture. In these tests native grown red clover seed gave a stand that was more than three times as good as that from the Italian seed, while the yield from the native seed was almost four times as great as that from the Italian. The noticeable decrease in the acreage of red clover in the United States, following a heavy importation of seed, probably can be accounted for by the failures of foreign clovers, in the opinion of John Pieper, assistant chief of crop production. "Despite the fact that most of the red clover seed which is imported into the United States is not adapted to conditions in this country, about 15 per cent of the red clover sown in the United States is of foreign origin. If none of this imported seed was used in adulterating native grown seed, the total loss from the use of this seed alone would be enough to discourage many farmers from growing red clover.

"On several plots where Italian red clover seed was sown, a stand of 50 plants a square foot was obtained, but most of this was killed during the winter with the result that by spring the stand had dwindled to three and a half plants a square foot. The total yield of the Italian clover for two years was less than nine-tenths of a ton an acre for three cuttings. During the same period and in the same field Illinois grown red clover seed yielded 3.13 tons of hay an acre. Red clover seed from other southern European countries also is poor, while that coming from northern European countries is somewhat better. In most cases it is impossible to tell the difference between foreign grown red clover seed and native grown, nor is it possible to tell southern European seed from northern European. Red clover seed from Chili, South America and from the Pacific coast states also is slightly inferior to the home grown stock. In so far as the experiments have been conducted, red clover seed from Idaho, Wisconsin, Michigan and Illinois is superior to that from foreign sources. It is believed that seed produced in any of the corn belt states would do well when again sown in the same region."

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## Wide Range Is Covered By Seeding Dates For Sweet Clover

Seeding dates for sweet clover may extend from early February until late in April with success practically assured, provided the land has been limed and the proper inoculation of nitrogen-fixing bacteria is present, according to experiences which the experiment station of the college has had with the crop during the past 21 years on its soil experiment fields over the state. In general, early seedings are made in winter grain crops while the late seedings are made in the spring grains, according to H. J. Snider, assistant chief of the fields.


Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*

## Sweet Clover Carries Enough Nitrogen For Big Corn Crop

Sweet clover turned under as a green manure crop in a four-year rotation of corn, oats, clover and wheat on the experiment field which the College of Agriculture maintains near Mt. Morris has given increases in the yield of these four crops which are valued at $31.40 an acre, according to H. J. Snider, assistant chief of soil fields. The sweet clover is turned under for the corn crop and when there is a good heavy spring growth of the legume it furnishes enough nitrate to carry an 80 to 100-bushel corn crop. Farmers can get the advantage of this amount of nitrate fertilizer for their 1927 corn crop by seeding sweet clover this spring, Snider points out. This seeding may be put in winter wheat, rye, oats, spring wheat or barley. Sweet clover has been successful when seeded in any of these small grain crops.

The nitrogen in sweet clover is in a readily available form for the corn crop and sweet clover therefore has a high fertilizing value because of the large amount of such nitrogen which it contains. Many field tests show that the nitrogen is not all utilized the first year after plowing under but is carried over for three or four years to be used by later crops.

On the Mt. Morris field, for instance, the sweet clover green manure crop has swelled not only the yield of corn but also the yield of oats, red clover and wheat as well. The wheat crop on this field does not get the benefit of the sweet clover until the fourth year after it is turned under, but even under these conditions the wheat yields have been boosted 7.5 bushels an acre by the sweet clover treatment.

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## Wide Range Found In Costs Of Producing Illinois Grains

Investigations made by the College of Agriculture, University of Illinois into the costs of producing grain on Illinois farms have revealed that within a small group of ten to 20 different farms operating under similar conditions the cost of growing a bushel of grain will vary at least 50 per cent during any given season. Failure of the grain grower to have a definite plan well thought out for getting the maximum return out of all the items which go into the growing of a crop frequently accounts for the high cost of growing grains on some farms, in the opinion of R. R. Hudelson, farm organization and management specialist.

The cost of operating an acre of grain land and the yield in bushels are the two factors that determine the actual cost of producing a bushel of grain, according to Hudelson. Just as the yield may be considered as made up of a group of factors including seed, soil, cultivation and moisture, so the cost of operating an acre of grain land is made up of such items as interest, taxes, man labor, horse and tractor power, seed, machinery, manure and overhead. Of these factors the greatest variation is found in power and labor costs, he said.

"Both power and labor costs can be cut down by selecting a combination of crop and livestock enterprises which will keep men, horses and tractors profitably employed through as much of the year as possible. Another way in which the bill for these items can be reduced is to have fields of good shape and large size conveniently located from the farmstead so that a large amount of work can be done each day. Other items of cost can be considerably influenced by means of a definite plan made early enough to take advantage of known conditions and to provide in advance for probable variations in season and possible crop failures."

## Too Many Sows And Gilts Fail To Put Pigs In Feed Lot

Pork producers stand a heavy expense in carrying sows and gilts which return no profit, it is indicated by pork production records which the College of Agriculture gathered from 25 Woodford and McLean county farms. Fifteen per cent of the sows and gilts which were bred on these farms failed to wean litters, according to the records.

"These 25 farms each kept an average of almost 19 sows and gilts, or 470 in all", R. C. Ross, of the college farm organization and management department, said. "Of this number 16, or 3.4 per cent, died between the time they were bred and the litters were weaned and 28 others, or six per cent of the total number failed to produce litters. This left 426, or 90.6 per cent of the original number, which farrowed litters. Between farrowing and weaning time, however, 26 more, or 5.5 per cent of all the sows and gilts bred, lost all of their pigs from various causes, leaving 400, or 85 per cent of the total number, which produced pigs for the feed lot.

"While a 100 per cent pig crop can hardly be expected, the overhead cost of carrying unproductive breeding stock may be greatly reduced. The early removal of all non-breeders from the herd and the fattening of them for an early market reduces feed costs and takes advantage of a market which is usually favorable. The greatest saving, however, may be made by reducing losses after farrowing, thus securing profitable litters from a larger proportion of the sows which are bred."

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## Thousand Farmers In 78 Counties To Push Sanitation

Approximately 1,000 Illinois farmers in 78 different counties will use sanitation on their hogs this year to find out for themselves and show their neighbors how cleanliness in the raising of the pig crop paves the way for economical and profitable pork production. These thousand farmers will cooperate with the College of Agriculture and their county farm advisers in conducting demonstrations of the swine sanitation system which is advocated by the college and which last year gave striking results when used on 608 farms in 61 counties. The sanitation system is aimed at the control of round worms and associated troubles in young pigs.

Farm bureaus in 17 counties, including Clark, DeKalb, DeWitt, Franklin, Greene, Iroquois, Jefferson, McHenry, Randolph, Rock Island, Saline, Union, Vermilion, Mason, Pulaski, Madison and Pike will take up the swine sanitation work for the first time this year.

The work also will be carried on in all counties which stressed it last year. These counties include: Adams, Bond, Brown, Bureau, Carroll, Cass, Champaign, Christian, Clinton, Coles, Crawford, Cumberland, Douglas, DuPage, Edgar, Edwards, Gallatin, Grundy, Hancock, Henderson, Henry, Jackson, Jersey, JoDaviess, Kendall, Knox, Lake, LaSalle, Lawrence, Lee, Logan, Macon, Macoupin, Marion, Marshall-Putnam, McDonough, McLean, Menard, Mercer, Monroe, Montgomery, Morgan, Moultrie, Ogle, Peoria, Piatt, St. Clair, Sangamon, Schuyler, Scott, Shelby, Stark, Stephenson, Tazewell, Wabash, Warren, White, Whiteside, Will, Winnebago and Woodford.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX February 17, 1926 Number 7


## Suitable Farm Homes Aid Agricultural Welfare

Suitable housing for farm workers is one of the requirements for the future welfare of agriculture, in the opinion of W. A. Foster, of the farm mechanics department College of Agriculture. The farm home not only must be a fit place to live, but also an efficient place to work, since the farm woman spends practically all of her time within its walls. An abundance of light, air and running water; simple, strong construction; convenient interior arrangement, and an attractive exterior and setting are necessary to wholesome living. Energy is lost in the operation, fuel is wasted in heating and health is often broken or sacrificed in attempting to maintain the home and an average standard of living.

Every farm house is a separate problem which requires individual study. The architect is better able to plan the house and avoid the countless mistakes made in amateur planning. Yet, in many cases, the architect is not familiar with the problems of the farm and fails to turn out the most satisfactory plan. He is only human and needs the fullest cooperation of the farmer and his wife.

Since each house involves special problems, one can only suggest in a general way the desirable features of a farm home. The farm house may be divided into several parts for convenience. These divisions are: (1) preparing and serving foods - kitchen and dining room and breakfast alcove; (2) service - hall and stairs, basement and closets; (3) sanitation - toilet, bath, washroom and laundry; (4) recreation - living room, porch and library; (5) administration - office and (6) sleep and rest - bedrooms and sleeping porch.

The most practical house should be planned from the kitchen, the woman's workshop, and from the communication, the hall and stairs. A coordination of parts with reference to openings, doors and windows, and wall space; cross circulation in kitchen, living room and bedrooms; sun exposure for parts - morning sun for kitchen, shade for summer and inspiring views from the kitchen windows as well as living room go a long way in making the farm house comfortable, cheerful and home-like.

Each part should be studied carefully in relation to others. Accessibility of toilet for household members and bathroom for guests; distance to front door; steps required in kitchen operations and serving meals; ease of cleaning; conservation of heat; practicability of interior decoration, and many others contribute much to the success and liveableness of the American farm home.


Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

## Chickens Suffer Most From Nutritional Diseases

Chickens, of all farm stock, are most likely to suffer from nutritional ailments or diseases under practical farm conditions, according to E. R. Frank, assistant in the division of animal pathology and hygiene at the College of Agriculture. Because of the nature of their digestive tracts, chickens must get rations composed largely of seeds and seed by-products feeds that are poorly balanced with respect to minerals, protein and vitamins.

"As compared with other animals, chickens have such an intense vitamin requirement that their rations must be supplemented with feeds known to be rich in this respect. Vitamins are manufactured by plants only, and, with few exceptions, green plant tissues are the best sources of vitamins known. Young chicks are especially susceptible to lack of vitamins in their rations and will develop the disease known as "leg weakness", which includes an impaired appetite, an anemic condition of the comb and wattles, drooping wings, ruffled feathers and unsteady gait. This can be prevented by giving the chicks ready access to green feeds such as cabbage or lettuce leaves, fresh alfalfa or clover or sprouted oats. If green feed is not available, three to five per cent of cod liver oil in the mash may be used.

"Pigs are hit hardest by nutritional ailments such as lameness, unthriftiness, partial paralysis or rickets in the winter and early spring. Green growing grass and forage crops with their abundance of vitamins and minerals are the natural practical carriers of these two essential food constituents which prevent nutritional ailments. Good substitutes for grass in winter when pigs are most troubled with rickets are green leavy legume hays, preferably alfalfa hay, to which pigs and sows should have access or which after being chopped or ground may be fed to the extent of about 5 per cent in their feed mixture. In some sections of the state there seems to be a deficiency of iodine which is shown by the condition known as hairlessness in pigs. This may be prevented by putting one dram of potassium iodide in each 100 pounds of feed fed to sows during gestation."

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## DuPage County Has Lead In Better Dairying Work

DuPage county dairymen have taken the lead over farmers and dairymen in all other counties of the state in the movement for more efficient and profitable dairying, according to a report by H. E. Jamison, assistant dairy extension specialist of the College of Agriculture. With three dairy herd improvement associations now operating within the county, DuPage is setting the pace for all other counties of the state both in total number and percentage of cows that are being tested for milk and butterfat production, according to the report. Each month these three associations are gathering definite production records on more than 1,600 DuPage county cows, or almost nine per cent of the 18,400 cows in the county.

The three associations have a membership of 78 farmers and dairymen, 26 of these having just recently been added with the organization of the third association. Like the others, the new association was perfected through the cooperation of Farm Adviser E. A. Carncross and the college dairymen and it already has obtained the initial records of cows belonging to the 26 members.

## Weed Seed Menace Not Solved By Seed Law Alone

Farmers sometimes put too much faith in seed laws in the belief that such laws give them absolute protection against noxious weeds, J. J. Pieper, assistant chief of crop production at the College of Agriculture says. Such laws do not purify weedy samples of seed but only prevent the farmer from buying farm seeds with a high percentage of noxious weed seeds in them. More than 75 per cent of the worst weeds in Illinois have been imported from foreign countries through impure seed and as long as farmers are careless in buying crop seeds this high percentage of noxious weeds will continue to increase.

"The farmer who wants absolutely pure seed must look for the tag showing the analysis of the sample. He can then accept or reject a sample of seed which is not absolutely pure. Too many folks believed that all that was necessary to eliminate weed seeds from our crop seeds was to enact a seed law. Quite the contrary, there is no seed law designed to prevent the sale of agricultural seed which contains only a few noxious weed seeds.

"Illinois, like a number of other states, has a seed law which is designed to protect the people of the state, especially the farmers, against noxious weeds. Seeds which are sold or offered for sale within the state and which are to be used for planting purposes must be tagged according to specifications of the law. Before the seed can be tagged, a sample must be submitted to the chief seed analyst at Springfield in order that he may determine whether or not the presence of noxious weed seeds will permit the sale of the seed. As has been pointed out, however, this seed law does not purify weedy samples of seed but only protects the farmer against buying seed with a high percentage of weed seed in it.

"In order to fully protect themselves against the weed seed menace, it will be necessary for the farmers not only to buy pure seed but also to produce pure seed. Seed dealers often are criticized for selling poor seed, but it should be remembered that all poor seed offered for sale was produced by some farmer. Practically all seed dealers make an effort to sell better seed than what they buy. In many cases, the only reason that weed seeds continue to remain in the crop seeds is the fact that seed dealers are unable to separate them with the machinery available."

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## Oats and Corn Best Crops for Idle Wheat Land

Farmers in southern Illinois who had to abandon their wheat sowing plans last fall because of the wet weather can make their choice between oats or corn this spring in selecting a crop to plant on the prepared wheat land now lying idle, according to H. J. Snyder, assistant chief of the soil experiment fields which the College of Agriculture maintains over the state. Spring wheat cannot be used on this land because it is far outside the spring wheat belt, he said. There is a considerable acreage of unsown wheat land in southern Illinois which received limestone and other soil treatment.

During the past 13 years, the corn yields which the experiment station of the college has harvested from its southern Illinois experiment fields have shown exceptional promise, although the oats yields have been low. However, corn and oats yields on the experiment fields in the south central section of the state have been more nearly equal during the past 12 years.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX February 24, 1926 Number 8


## New Circular Maps Out Controls For Diseases Of Brambles

Diseases of the bramble crops, blackberries, raspberries and dewberries, have become so serious in Illinois that what was once an industry of importance has been riddled, according to a new publication entitled, "Diseases of Brambles and Their Control", which the College of Agriculture is preparing for early distribution. A. S. Colby, associate chief of pomology, and H. W. Anderson, associate chief of pomological pathology, who are the joint authors of the new publication, point out that many small fruit growers have gone out of business, while new plantations which have been set out during the past decade or more have not been big enough to counterbalance the loss of older patches. Census reports show that Illinois' 5,448 acres of brambles in 1909 were decreased by 100 acres by 1919, in spite of the increasing population and the resultant demand for quality fruit.

Anthracnose, which has put a complete stop to the growing of raspberries in some sections of Illinois, is singled out as one of the most serious diseases of brambles. More than 50 per cent of the Illinois raspberry crop is estimated to have been lost in 1908 alone because of this disease, while 25 per cent of the berry crop is lost annually as a result of it. Crown gall, however, is perhaps the most serious disease with which the small fruit grower has to contend. It always causes serious losses, both on brambles in the nursery and in the field, nurserymen frequently having to discard from 10 to 50 per cent of the plants.

Another serious bramble disease and one which is widely distributed over the state is cane blight. The damage which it does, however, varies in different years. It is favored by a warm, wet summer followed the next year by a wet spring with a dry period during the ripening of the fruit. During such seasons in New York the loss of from one-third to two-thirds of the red and black raspberry crop is commonly reported, but it is doubtful if such extensive losses ever occur in Illinois. One of the most common diseases of raspberries and blackberries, but one which usually is not regarded as destructive, is leaf spot. On the other hand, orange rust, which is most commonly found on wild species of blackberries and dewberries and which has been known in Illinois since 1850, causes serious losses in cultivated patches.

Most raspberry plantations in Illinois contain some spur blight, but this disease is not one of the well recognized ones of raspberries in this state. Separate control measures will not be needed for it unless it spreads more rapidly than it has in the past.

Three bramble diseases of similar nature which are believed to be the principal cause of the "running out" of raspberry plantations in the older fruit growing sections of the country are leaf curl, mosaic and streak. Through the cooperation of interested nurserymen, it is hoped that considerable supplies of stock free from these diseases will soon be available.

The new publication will give control measures for all these diseases.


Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

## Red Clover Growing Threatened By Heavy Imports Of Seed

With a total of 5,203,600 pounds of red clover seed imported into the United States last month alone, red clover crop failures in Illinois and other states can be expected to increase unless farmers use extra caution in avoiding this inferior seed and planting only native grown red clover of known origin, it is pointed out by John Pieper, assistant chief of crop production at the College of Agriculture.

The January importation of 5,203,600 pounds of red clover seed is about half the average annual importation and considerably more than half as much as came into the country during the entire year of 1925. The total imports for the whole of last year aggregated only 852,000 pounds. Undoubtedly some of the seed which has just come in with the January importation will reach this state, for foreign seed in previous importations has been detected as far west as Iowa and Nebraska.

Little of the red clover seed which comes to the United States from European countries is adapted to conditions here, but tests made by the college show that seed from Italy is the worst of all. Southern European countries also send seed that is poor, although that from northern European countries is a little better. None of the imported seed, however, is on a par with native grown seed of know origin.

"Farmers who plan to sow red clover are urged to use only native seed of known origin and when this is impossible it is recommended that native grown alsike be substituted for red clover on land which is not sweet enough to grow alfalfa or sweet clover. However, where the land has been limed, sweet clover had best be substituted for red clover, while alfalfa should be used to a greater extent as a hay crop where the land is adapted to it. The growing of an annual legume like soybeans or cowpeas is recommended when these will fit into the rotation and where the land is not sweet enough for alfalfa or sweet clover.

"Those who are compelled to grow red clover because of their crop rotation systems and who are unable to get native grown seed of a known origin should insist upon northern French, German or English seed. In no case should seed be used that is merely labeled European or source unknown."

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## College Announces Dates For Important Events Of The Year

Dates for a half dozen or more important meetings, conferences, schools and tours which the College of Agriculture will hold during the coming year have been announced as follows:

Farm Advisers' Summer Conference, June 15 to 17
University Club Tour, June 16 to 18
High School Judging Contest, June 18 to 19
Farmers' Open House, June 21 to 26
Junior Club Livestock Judging Contest, August 16
Farm Advisers' Fall District Conferences:
- Chicago - October 18 and 19
- Galesburg - October 20 and 21
- Centralia - October 26 and 27
- Decatur - October 28 and 29

Agricultural Extension School, January 31 to February 5, 1927.

## Chick Brooders Can Be Operated With Soft Coal And Coke

Many chicken raisers having coal burning brooder stoves may not be able to get hard coal during the coming brooding season as a result of the recent eastern coal strike, it is pointed out by John Vanderwort, poultry extension specialist at the College of Agriculture. Fortunately, soft coal and coke, although not as efficient for fuel as hard coal, can be used with a reasonable degree of satisfaction if the stove is given more attention and certain precautions are taken.

"A mixture of soft coal and coke, containing one-third to one-half of the latter, can be used with good results and the stove pipe will not be so likely to clog as when soft coal is used alone. A high grade screened coal of medium or chestnut size should be used rather than a grade which contains a large percentage of large lumps or too fine material. Coal that forms clinkers is objectionable.

"With soft coal, the stove may need to be fired at least three times daily and once late in the evening to get the best results. A stove with a four or five-inch stove pipe and a large coal hopper is better adapted to the use of soft coal than one with a small, three-inch stove pipe and a small coal hopper. Poor draft, of course, results when the pipe becomes partially clogged and it is recommended therefore that the pipe be cleaned as often as once a week. There are stoves on the market which are especially adapted to the use of soft coal.

"Regardless of the kind of fuel that is used, the brooder stove should be tested at least 48 hours before the chicks are placed in the brooder house."

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## Legume Crops Check Soil Erosion In Three Different Ways

A three-way check on soil erosion, one of the most serious soil problems of farmers in many parts of Illinois, can be obtained through the growing of legumes, according to soil specialists at the College of Agriculture, University of Illinois. Legumes do this by furnishing a cover crop, by adding a comparatively large amount of organic matter to the soil and by holding the soil with their heavy root systems.

"Any legume may serve as a cover crop, but some legumes are especially adapted to forming a cover crop which will, to a large extent, prevent erosion on hill lands. Clovers such as red, alsike, mammoth, sweet and alfalfa make excellent cover crops. These crops cover and protect the land during the seasons when erosion is most likely to occur. Crops of this kind are especially valuable in preventing sheet washing.

"All of the legumes which have been mentioned can be handled in such a way that they will add a large amount of organic matter to the soil and this in turn will cut down the possibilities of erosion. Organic matter in the soil absorbs the water and in this way cuts down the volume of runoff. Organic matter also enriches the soil and reduces the hazard in growing cover crops.

"Root systems of the legume crops play a big part in checking erosion. The roots hold the soil particles together, make the soil hold water better and add organic matter directly to the soil. The heavy root systems of sweet clover and alfalfa are well adapted for this. Sweet clover is used to a large extent in preventing and checking erosion on the hill lands of southern Illinois."

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX March 3, 1926 Number 9.

## Suggests Caution In Extending Hog Raising Operations

With prospects of more spring pigs being weaned in the country this year than was the case in 1925, and other signs pointing toward an expansion of the hog business, Illinois farmers will do well to proceed with caution in extending their hog raising operations, it is pointed out by W. E. Carroll, chief of swine husbandry at the College of Agriculture.

That considerable expansion already has taken place in hog raising on Illinois farms is indicated by the fact that the state this year has one per cent more of the country's total hog population than it had last year. This really puts the state in a favorable position for the present, but at the same time it also suggests that this percentage should not be increased to too great extremes in the near future.

More spring pigs probably will be weaned in the country this year than in 1925 because the recent pig survey of the federal department indicates that a few more will be farrowed this year and because better care probably will be given of those that are farrowed.

While it is felt that spring pigs, especially those in early litters which are fed to reach a moderately early market, will be good property, there are plenty of indications that those who are interested in raising hogs are trying in every way possible to increase the number of pigs in the United States. It is evident that sows and gilts are being held back as prospective breeding sows, in view of the fact that hogs now being killed at market contain a very large percentage of barrows.

"The fact that it is possible for new producers to get into the swine business in a short time and over expand the industry makes caution seem wise just at this time. Already there is a feeling that fall pigs this year will not be as profitable as they were in 1925. It is true that as the scramble for breeding stock continues, it may only be a year or two until the hog population is beyond the consumptive demand and this, of course, will mean low prices again for hogs. On the other hand, if judgment and foresight are used to keep the hog population down to about the number which can be handled properly through market channels, there is no reason for the swine business to go through another depression. It is not likely that there actually will be a depression, because the situation is extremely complicated, but, nevertheless, any effort that is made toward preventing a depression probably will be rewarded."



Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

## Yields On Lebanon Soil Field Double Those Of County

Soil improvement methods followed by the College of Agriculture on the soil experiment field which it maintains near Lebanon have produced yields of corn, wheat, hay and oats which are close to double the average yields for the county, according to figures compiled by H. J. Snider, assistant chief of the college's soil experiment fields. These increased yields have been obtained largely by liming the land and then growing sweet clover for a green manure crop.

With corn, for instance, the average yield for the county, during the four years ending 1924, was 32 bushels an acre. This was about four bushels less than the average yield made by the untreated land on the experiment field during the same four years. In contrast to this, an average yield of 51.9 bushels an acre was harvested during the four years from land on the experiment field which had been treated with limestone and sweet clover. This is practically 20 bushels an acre more than the county average.

The average wheat yield for the county during the four years was 14.2 bushels an acre, which was approximately half the yield obtained on the treated land on the experiment field. In the case of wheat, however, the yield on the untreated land on the field was 23 bushels an acre, which is somewhat larger than the county average, due probably to the character of the soil and the rotation practiced.

During the same four years, the hay yield for the county averaged 1.34 tons an acre, while land on the experiment field which was treated with limestone and sweet clover made 3.57 tons an acre. Untreated land on the field made 1.69 tons an acre.

Oats yields in the county averaged 30 bushels an acre during the four years ending with 1922, but during the same four years the land on the experiment field which had been treated with limestone and sweet clover averaged 53.3 bushels an acre, or an increase of 23.3 bushels an acre over the county average. The average from untreated land on the experiment field was 39.9 bushels an acre.

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## Herd Association Saves One Of Its Members $15 A Month

At least one member of the dairy herd improvement association recently organized in Kendall county by Farm Adviser Earl Price and the College of Agriculture already is cashing in on his membership. This one dairyman was found to be losing more than $15 worth of butterfat a month because of poor work being done by his cream separator. So faulty was the machine that the skimmed milk contained almost one-half of 1 per cent of butterfat, or more than one-tenth of all the butterfat in the whole milk when it went into the separator.

Howard Wood, Oshkosh, Wisconsin, who has been engaged to keep the feed and production records of the cows belonging to members of the association, also has reported that several other members in the association are planning to improve their feeding methods as a result of pointers they have been given during the early days of the association. Several of them are planning to add protein-rich supplements to their farm grown grains in order to get higher and more efficient milk production from their cows.

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## More Attention To Farm Tools Might Add To Net Income

Pointing out that labor and power are the two biggest items in the farmer's operating costs, E. W. Lehmann, head of the farm mechanics department, College of Agriculture, says that Better Farm Equipment Week, March 15 to 20, is a good time for the farmer to think about more economical production which, in turn, will swell the size of his net income.

"Considering labor first, the proper equipment or machine is a big factor in cutting down the amount of labor required to do any job. To use inadequate equipment or a machine that needs repairs may be both poor management and false economy.

"As for power costs, they are twice as high on some farms as they are on others. Even the average cost for farm power is entirely too high. To increase the net profit from farming by lowering the cost of power, the farmer must do more than make a careful analysis of his power needs and make a wise selection of power units. He also must make the best use of the power he has at hand.

"If power is to be used effectively, something more must be done than just keeping it in use the maximum number of hours during the year. In addition, where horses are used for power, they must be kept in good condition for work, the harness must be properly fitted and adequate hitches must be provided. If a tractor is used, it must be kept in good repair and kept well oiled and adjusted, ready for a day's or a week's work as the occasion demands and used for those jobs where the power available will be used most efficiently.

"With the cooperation of dealers and manufacturers, every farmer could well afford to devote some attention to his equipment during Better Farm Equipment Week to the end that his farming operations might be done more efficiently and with greater economy and profit."

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## 468 Cows Now In Race For Memberships In Select Club

Memberships in Illinois' select dairy organization, the Illinois 500 Pound Butterfat Cow Club, this year will be sought by 468 dairy cows owned by 143 dairymen in 20 counties, it is announced by C. S. Rhode, dairy extension specialist of the College of Agriculture. A production of at least 500 pounds of butterfat a year is required of each cow that is awarded a membership and the gold medal which goes with it. Last year, the first one in which it operated, the club awarded memberships to 41 cows owned by 23 dairymen and farmers in 10 counties of the state. The club is being sponsored by the agricultural college to show the value of good breeding, proper feeding and careful management in developing dairy herds that are high and efficient producers.

The 20 counties represented by the 468 cows which have been nominated for membership are DuPage, Ogle, McLean, McHenry, Will, Carroll, Edgar, Vermilion, JoDaviess, Kane, Kankakee, Kendall, Knox, Warren, Lake, LaSalle, Lee, Moultrie, Peoria and Stephenson. The first five of these rank in the order named in number of entries, DuPage having 88, Ogle 73, McLean 45, McHenry 40 and Will 37.

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Volume IX March 10, 1926 Number 10


## Knox-Warren Records Show Tractor Costs and Uses In 1925

It cost an average of $191.86 more last year to operate three-plow tractors on west central Illinois farms than it did to operate two-plow tractors on other farms in the same territory, according to records secured by the farm organization and management department of the College of Agriculture from 52 Knox and Warren county farms. However, the differences in hourly operating costs was not as wide as this, since the three-plow machines were used a greater number of hours during the year than the two-plow ones.

Three-plow tractors on 24 of the 52 farms ran up an average operating cost of $421.75 for 374 hours use during the year, while 28 two-plow tractors on the rest of the 52 farms had an average operating cost of $229.89 for 304 hours use during the year. This made the operating costs of the three-plow tractors $1.13 an hour as compared to 76 cents for the two-plow machines.

The fact that the three-plow tractors were used more hours during the year than the two-plow machines can be accounted for by the fact that the larger machines were used much more for belt work and considerably more for odd drawbar jobs than were the two-plow machines, according to R. C. Ross, of the farm organization and management department. The hours of tractor work in plowing and disking were practically the same for farms using three-plow tractors and for those using the two-plow machines, although the farms using the larger tractors had an average of 264 acres in crops as compared to 185 acres on farms using two-plow tractors.

A summary made of the tractor records by Ross shows that of the 374 hours of work done by the three-plow tractors, 133 were spent in plowing, 100 in disking, 42 in miscellaneous drawbar work and 99 in belt work. Of the total average operating cost of $421.75, depreciation accounted for $176.52, fuel and oil for $141.13, repairs for $45.40, interest on investment for $45.78, and labor in overhauling and keeping in condition $12.92. No charge was made for the operator's labor in running the tractor.

The 304 hours of work done by the two-plow tractors was divided into 130 hours of plowing, 101 hours of disking, 33 hours of miscellaneous drawbar work and 40 hours of belt work. Of the $229.89 for total operating costs, $92.84 went for depreciation, $85.16 for fuel and oil, $23.64 for repairs, $20.54 for interest on investment and $7.71 for labor in overhauling and keeping in condition. These costs are typical for the livestock farms in west central Illinois, although the individual farms may vary widely in their costs of tractor operation, Ross said.

Tractor records secured from 101 Champaign county farms show that plowing furnished more than half the work done by tractors on those farms. Sixty-eight of these farms used two-plow tractors at an average net operating cost of $238.06 for the year, while the 33 other farms used three-plow tractors for which the year's net operating costs averaged $328.54.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

## U. S. And Canadian Entomologists Report Corn Borer Spread

Continued spread of the European corn borer in both the United States and Canada was reported by entomologists who attended the recent annual conference of the North Central States Entomologists held at the College of Agriculture. A review of the corn borer menace featured the conference, which was attended by more than 50 insect authorities from Nebraska, Kansas, Iowa, Minnesota, Missouri, Wisconsin, Michigan, Indiana, Ohio and Illinois and by officials from the United States and Canadian bureaus of entomology. In Canada, the corn borer situation has reached the point where definite legislation probably will be enacted to require that corn in severely infested districts be grown only under enforced clean-up conditions, it was reported by Alan Dustan, acting in charge of the division of field crop and garden insects in the Canadian bureau of entomology.

In Pennsylvania, New York and Michigan, the spread of the corn borer last year was "very great", although Ohio, the fourth state which is infested, had a smaller spread of the pest than was the case in 1924, it was reported by W. H. Worthley, who is in charge of all the corn borer quarantine work for the federal government. Eighty-seven quarantine lines have been thrown up around the infested areas in these four states and a total of a half million automobiles stopped and searched to prevent corn from being carried out of the infested district. A total of 170,000 ears of corn containing 1,900 borers were found in these cars, while in some cases the drivers intended carrying the corn 100 miles.

Last year in Canada, from whence the borer came to the United States, the insect was found in 25 new townships, making a total of 252 townships, or 18,590 square miles, which are either infested or quarantined, Dustan reported. There is little prospect that the infestation will spread further in 1926, but an increase in the intensity of the general infestation is feared, he said.

- M -

## New College Circular Issued As Handbook For Rope Users

Farmers not only buy large amounts of rope but also have to use it in almost every type of farm work. To get satisfactory service from rope with the least expense and trouble, they therefore must be able to select the right size and proper quality, use the correct size of pulleys, know how to care for rope to prevent deterioration and breakage, how to tie knots and hitches and how to make repairs quickly and efficiently, says a new circular, "Practical Uses of Rope on the Farm", which has just come off the press at the College of Agriculture and is now ready for those interested. The circular was written by I. P. Blauser, of the college farm mechanics department, and is designed as a handbook for rope users.

The farmer who can make a good splice quickly loses little time and money when a hay rope breaks, the circular points out. Even by knowing the right knot to use for tying two balls of binder twine together, he will avoid no small amount of trouble and annoyance which often is caused by using a less suitable knot for the place.

Thirty-four different hitches, knots and loops are taken up in the circular, detailed directions and illustrations being given to show just how to make them step by step. Such subjects as how to break twine, care of rope, casting harness, coiling and uncoiling rope, the elements of a knot, halters, relaying untwisted rope, rope terms, splices, whipping the end of a rope and the weight and strength of rope also have a place in the circular.

## Rambouillet Breed Loses With The Passing Of U. of I. 536

After having produced breeding stock which sold for close to $2,000, one of the outstanding ewes of the Rambouillet breed has had to be discarded from the sheep flock at the College of Agriculture because of old age, blindness and weakness. Bred by the agricultural college, she was known as U. of I. 536. Within her veins she carried bloodlines which represented a combination of many of the greatest sires ever produced in this country. The eight outstanding rams and two ewes which U. of I. 536 produced stamped her as one of those unusual performers which are the basis of flock improvement and advancement in the livestock industry, according to W. G. Kammlade, in charge of the college sheep division.

The first ram produced by U. of I. 536 sold in the National Ram Sale at Salt Lake City, Utah, for $350, being bought by the owner of one of the leading Rambouillet flocks in Idaho at that time. Another son sold to the federal government for use in one of the educational camps established after the war, while a third ram won third place as a lamb at the 1920 International Livestock Exposition and was bought by the Colorado College of Agriculture to head the Rambouillet flock at that institution. Two other ram lambs, one a prize winning lamb at the 1921 International, died before reaching maturity. The fifth son of U. of I. 536 sold to a California breeder at the National Ram Sale of 1923 for $625, this being next to the highest price of the sale for that year. At the 1925 sale a yearling ram, U. of I. 1060, sold for the ninth highest price in the Rambouillet list, going to a breeder in the noted Mount Pleasant region of Utah. The other son of 536 recently was sold at the age of seven months to the Michigan Agricultural College. A daughter of 536 is being kept in the Illinois agricultural college flock.

It was just 10 years ago that U. of I. 536 was lambed. She had a pedigree which traced back to the world famous flocks of Von Homeyer, Steiger and Victor Gilbert, of Germany, while the maternal side of her pedigree represented four generations of University of Illinois breeding. Her dam was also the dam of the champion Rambouillet ram at the International Livestock Exposition in 1917. Those breeders who do not look for and discover such individuals cannot hope to be successful in producing large numbers of exceptional animals, Kammlade said. Not all the members of a flock can have a record of this kind and it therefore must be the business of the breeder to select and retain the rams and ewes of outstanding individuality and performance.

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## Loss Of Butterfat Is High When Milk Is Separated Cold

More than 2 per cent of the butterfat in whole milk may be lost in the skimmilk when the whole milk is run through a centrifugal separator at a temperature as low as 60 degrees Fahrenheit. This was revealed in tests made by P. H. Tracy, of the dairy manufactures division, College of Agriculture. It seemed as though the cold cream which was first separated sealed the disks so that the rest of the milk simply passed through the machine with very little separation taking place.

"Milk should be run through the separator as soon after milking as possible so that the separation can be done while the milk is still warm. If the milk cools to about 70 degrees and is then separated, the bowl may not become sealed as in the above case but a higher testing cream will result and there will be a greater fat loss in the skimmilk than would occur at a higher temperature. High testing cream causes high bowl losses, as the thick cream has a tendency to stick to the bowl parts. For best results cream should test about 30 to 35 per cent butterfat in winter and 35 to 40 per cent in summer."

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

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Volume IX March 17, 1926 Number 11

## Big Four Joins College In Plans For Dairy Club Special

A special "dairy club" train which the New York Central Railroad will operate over its Cairo division during the last week in April is one of the features in a plan being fostered by the railroad, the state department of agriculture, state and national dairy breed associations and the National Dairy Council in cooperation with the College of Agriculture for the purpose of encouraging boys' and girls' dairy calf club work and promoting the purebred dairy business in southeastern Illinois.

The plan is for the agricultural college to organize boys' and girls' dairy calf clubs in that section of the state and then when the train is operated it will make half day stops in each county along the route in which a club has been formed. The train not only will deliver the purebred dairy calves which will be raised and developed by the club members but also will provide a special dairy program at each stop.

Ten counties, each of which will have between 10 and 15 club members, probably will take part in the plan, according to boys' club work specialists at the agricultural college. This will mean that between 100 and 150 purebred dairy calves will be placed on as many southeastern Illinois farms as the foundation stock for future herds. Latest reports were that Vermilion, Edgar, Lawrence, White, Saline, Johnson, Pulaski, Massac, Hamilton and Alexander were planning to form clubs. Present plans are for the train to start at Danville, in Vermilion county, on April 24 and then proceed to the remaining counties the following week.

Representatives of the state and national dairy breed associations will cooperate in locating purebred calves for the club members. In Saline county, plans are already well advanced for a club of 25 to 30 members. The Harrisburg Kiwanis club will cooperate in this county by financing the purchase of a calf for any boy or girl who does not have the money.

Included in the equipment of the special "dairy club" train will be several cars of exhibit material and coaches for the convenience of those travelling with the train. The exhibits will be furnished by the agricultural college, the state department of agriculture and the National Dairy Council.

Plans for the program at each of the stops include a demonstration by C. S. Rhode, dairy extension specialist of the agricultural college, in which he will use high producing cows from the college herd to show how good cows are a factor in profitable milk and butterfat production; an address by W. S. O'Hair, of the state department of agriculture, and talks by representatives of the National Dairy Council. R. J. Plaster, agricultural representative of the New York Central lines, and E. I. Pilchard and C. E. Gates, boys' club specialists of the college, will have charge of distributing the calves at each of the stops.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

## New Cattle Plant Is Big Aid To U. of I. Dairying Work

After having had its main quarters in the same barn for the past 36 years, the herd of approximately 120 head of purebred dairy cattle at the College of Agriculture is now housed in a new plant. Already the plant is filling a long-felt need in the teaching and investigational work which the college is doing along dairy lines. Two main cow barns, four silos and a calf barn make up the plant as it now stands, but the plans call for the addition of a central storage section and a barn for cows that are on test. The barns and silos are of hollow tile construction resting on heavy concrete foundations.

The two main cow barns, which extend in a north and south direction, are each 118 feet long by 40 feet wide. Between the ends of them is an 80-foot gap in which the central storage space is to be located later. Just to the rear of this 80-foot opening are the four silos, two of which are 14 by 40 feet and the others 16 by 40 feet. They are built in pairs with enough room between the pairs for a driveway. Extending to the southwest from the pair of silos on the south is the calf barn section. This section, which is 113 feet long and 34 feet wide, gets the maximum amount of sunlight because of the direction in which it stands. The additional barn which will be built for test cows will extend to the northwest from the north pair of silos.

Of the two main cow barns, the one to the north contains 50 stalls, while the barn to the south contains 54 stalls. There is a slight range in the size of stalls in each barn. With this arrangement, cows are assigned stalls according to size. The north cow barn is arranged so that the cattle face out with a 10-foot walk behind them and feed alleys 4 feet, 3 inches wide in front of them. In the south barn the cows face in. In this barn the feed alley is 4 feet, 10 inches wide and the walks behind the cows 7 feet wide. The calf barn contains 12 individual calf pens, eight pens to accommodate four calves each, 15 stanchions for heifers, two box stalls for cows and two box stalls for bulls.

All three barns are equipped with modern steel stalls, automatic water bowls and litter carriers. This equipment was manufactured by different firms, thus giving students and visitors an opportunity of seeing different types of equipment in actual use. The mangers in both cow barns are made of concrete and are exceptionally broad and deep to prevent the loss of feed when feeding experiments are being conducted.

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## Outlines A Near-Panacea For Checking Baby Chick Loss

Between 35 and 40 per cent of the several million baby chicks which are hatched in Illinois this spring will die from such diseases as bacillary white diarrhea and coccidiosis and from faulty methods of feeding, poor housing, chilling and other non-specific causes, it is estimated by Dr. Robert Graham, chief of animal pathology and hygiene at the College of Agriculture. A near-panacea which will reduce these losses to a minimum calls for: (1) healthy hatching eggs from flocks tested for bacillary white diarrhea; (2) clean, disinfected incubators and clean, disinfected brooder houses; (3) clean, disinfected hen houses and proper feeding, and (4) clean ground which has not been used for poultry for at least one year, he said. There is no medicine that can compete with this prescription in reducing baby chick losses, he added.

## Big Increase Is Likely In San Jose Scale This Spring

Recent investigations by the Illinois State Natural History Survey show that from three to four times as many San Jose scale survived the past winter in Illinois orchards as was the case a year ago and consequently it will be well for orchardists of the state to spray their trees thoroughly this spring for the control of this pest, one of the serious ones of the fruit industry, according to S. C. Chandler, assistant entomologist of the survey. The situation is made more serious by reason of the fact that the hot weather of the past summer enabled the scale to regain some of the ground which it lost in orchards of the state during the cold winter of 1924-1925, he said. Apparently, about 40 per cent of the hibernating scale will survive the winter.

Eggs of apple aphis, an insect which may be sprayed at the same time as the scale, were very scarce this winter, thus indicating a light infestation of this pest unless weather conditions of the spring should be favorable, Chandler said. However, the insect has marvelous reproductive powers and even with its present poor start it might cause serious damage if the weather is cool and damp at the time of hatching and for several weeks afterwards.

"Oil sprays put on during the delayed dormant period when the tips of the buds are showing green will kill most of the young aphids that are thoroughly wet with the spray. Spraying should not be delayed, however, until the young leaves begin to appear, as the little aphids will crawl down between the leaves and then cannot be hit with the spray. If San Jose Scale is light in the apple orchard, liquid lime sulphur supplemented with a half pint of nicotine sulphate in each 50 gallons, is the best combination for both scale and aphis. Where San Jose scale is abundant, it is best to use one of the oil sprays, which are much better scale killers and almost, though not quite, as effective against aphis."

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## Soil Tests Would Save Fourth to Fifth Of Limestone

From 20 to 25 per cent of the limestone that otherwise might be applied to farm land to correct the acidity, or sourness of it, might possibly be saved if the land were first tested with a chemical known as potassium thiocyanate, according to an announcement by H. J. Snider, assistant chief of soil fields at the College of Agriculture. Possibilities for making this much saving in limestone are indicated by systematic tests which have been made of farm lands in various parts of the state to detect sour soil. By means of the test it is possible to locate the sweet and sour areas in the field and then apply the limestone, in so far as is practicable, only to the sour land.

"The test consists of collecting a number of samples of surface soil at points uniformly distributed over the field. The number of samples taken should vary with the size of the field, but the proportion should be approximately 25 samples from each 40 acres to be tested. Each sample should be placed in a small bottle, preferably a two-dram size and treated with a small amount of potassium thiocyanate solution. This is a commercial solution and information as to where it may be bought can be obtained from farm advisers or from the agricultural college. When the soil is mixed with this chemical, the solution either shows no color, indicating a sweet soil, or the telltale red color appears, indicating a sour soil. This red color may vary from slight pink to a very dark red. The more dense the color, the more sour the soil, the intensity of the color indicating the amount of limestone required an acre."

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX March 24, 1926 Number 12


## New Circular Reviews Swine Sanitation In Illinois

Details of how 608 farmers in 61 Illinois counties last year carried out a simple system of swine sanitation on their farms and thereby put their pork production operations on a better and more profitable basis are told in a new circular entitled, "Cheaper and More Profitable Pork Production Through Swine Sanitation", which the College of Agriculture has just published and now has ready for distribution to interested persons. Material for the circular was obtained almost exclusively from the reports and statements made by the 608 farmers who cooperated with their county farm advisers and the agricultural college in demonstrating the merits of the swine sanitation system advocated by the college.

More than one-fourth, or 154, of the 608 demonstrators made final and definite reports on their work. A summary of these reports shows that these farmers were able to make the following improvements in their hog raising by means of the sanitation plan:

As many pigs as usual were raised on the 154 farms from one-fourth fewer sows. On 40 farms where severe losses had occurred in the past because of round worms and other associated troubles, as many pigs were raised from one-third fewer sows.

The average number of pigs raised in a litter was increased 1.7 by the sanitation system. On the 40 farms where round worm and other infestations had been severe, the sanitation litters averaged 2.7 more pigs under the sanitation system than they had under the old system of raising hogs.

There were almost no runts where the sanitation system was complete and only one runt among each 100 pigs as an average for all the 154 farms reporting. Among the pigs reported as raised the old way in 1925, the runts number 18 to each 100 pigs.

With sanitation the farmers raised 98 per cent of the pigs saved at farrowing time and furthermore on 99 per cent of the farms the pigs were raised more cheaply by the sanitation system.

When four months old, the sanitation pigs averaged 28 pounds heavier than other pigs on the same farms; they were ready for market seven weeks younger than pigs usually are when raised the old way, and they were more uniform in weight and condition when marketed.

The new circular was written by E. T. Robbins, livestock extension specialist of the agricultural college. It is No. 306 and those interested may get a copy by writing the college.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. McMillan, Director.

## Poultry Council Announces May Day Will Be Egg Day

May Day this year is also to be "Egg Day", according to an announcement which poultrymen at the College of Agriculture have received from the National Poultry Council, a delegate organization representing the production and allied branches of the poultry industry. Officials of the council have decided that the farm hen and her product, the egg, merit at least a special day, if not a week, set aside in their honor and Saturday, May 1, has been set as the day. Specially appointed committees will arrange the details for paying homage to the hen in each of the various states. In Illinois, the agricultural college, the state department of agriculture, the Illinois State Poultry Association, the Illinois Poultry & Egg Shippers' Association and the Illinois Agricultural Association have been asked to cooperate with the state committee which will be appointed soon.

A review of Illinois' poultry industry, made in the light of the recent announcement of an egg day, brings out the fact that this state sends more eggs to the metropolitan markets of New York, Boston and Philadelphia than any other state in the country. Census figures also show that Illinois has more hens on farms than any other state in the country with the exception of Iowa. So important is the farm poultry business in Illinois that the hen is about on a par with the dairy cow as far as value of products is concerned. Recent figures give poultry products of Illinois an annual value of $68,000,000 as compared to a value of about $70,000,000 for dairy products.

The last yearbook of the federal department of agriculture shows that in 1924 Illinois sent 1,123,000 cases of eggs to New York, while Iowa, the next state in line, sent only 942,000 cases. The same year Illinois sent 659,000 cases to Boston, while Minnesota, the nearest competitor, sent only 191,000 cases. Philadelphia, the third large metropolitan market, received 304,000 cases of eggs from Illinois in 1924, as compared to 156,000 cases from Pennsylvania, the state which supplied the next largest number.

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## Herd Improvement Club Nets Farmer $35.33 In Month

Membership in his county dairy herd improvement association recently was worth just $35.33 in one month's time to one LaSalle county dairyman, according to figures worked out by H. E. Jamison, dairy extension specialist at the College of Agriculture where the records of these associations are summarized. The dairyman, A. A. Anderson, who lives near Sheridan, had ten cows, three of which were dry. These ten cows fell short by $5.22 of paying for the feed which they ate during a recent month. Sensing the cause of the loss, Edward Ehredt, tester in the association, suggested the feeding of a better ration and the use of other improved methods. Accordingly, Anderson changed from the feeding of whole grains to ground feed and in addition each cow was fed according to her production. Furthermore, the cows formerly had been forced to drink ice-water once a day. Anderson began using a tank heater. During the coldest weather he carried additional water to the cows.

Aided by these improved methods, the same cows the following month showed a return of $30.11 over and above the cost of the feed which they ate, whereas the previous month they lacked $5.22 of paying the bill. This made the total increase for the month in the returns from the herd amount to $35.33. The increase was obtained in spite of the fact that there were no fresh cows, all of them being more advanced in lactation.

## Many Cows Making Bid For Membership In Honor Club

A purebred Holstein cow owned by W. R. Angle, Dakota, is setting a swift pace for the 468 cows in 20 counties of the state which are trying for a membership in the Illinois 500 Pound Butterfat Cow Club, according to a study of the race made at the end of the first two months by C. S. Rhode, dairy extension specialist of the College of Agriculture, who is in charge of the club. The Stephenson county cow has produced 181.7 pounds of butterfat during the two months. Like the 467 other cows which are trying for a membership and the coveted gold medal, she must produce 500 pounds of butterfat during the year.

While the Stephenson county cow has a comfortable lead over the other contestants, there are a total of 104 other cows in 14 different counties which have put in strong bids for membership by producing more than 100 pounds of fat during the two months. Only six of the 20 counties which are represented by the entire group of contestants are not represented among the cows which have produced more than 100 pounds of fat in the two months.

Heading the list of 14 counties represented among the 105 high producers is Lee county with 15 cows that have passed the 100-pound mark in butterfat production. DuPage county is close behind with 14 high producers, while Will county is third with 11. Stephenson, McLean, McHenry and Kane counties each placed 10 and Carroll county seven. LaSalle county had four high producers among the 105 cows. Kankakee, Vermilion, Peoria and JoDaviess counties each furnished three of the 105 high producers, while Moultrie added the other two.

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## Slow Separator Speed Wastes Cream And Lowers Test

Running the cream separator at a speed slower than that recommended by the manufacturer not only increases the wasted cream in the skimmilk but also gives a lower testing cream, it is pointed out by P. H. Tracy, of the dairy manufactures division, College of Agriculture. In an experiment which he conducted, 30 pounds of 4 per cent milk separated at normal speed yielded six pounds of cream which tested 19.3 per cent butterfat, while the test of the skimmilk was three-hundredths of 1 per cent butterfat. In contrast to this, 30 pounds of milk from the same lot which was separated at a 20 per cent reduced speed yielded 8.75 pounds of cream which tested only 14 per cent butterfat, while the resulting skimmilk tested eight-hundredths of 1 per cent butterfat.

At reduced speed, less force is exerted upon the milk and as a result a larger proportion of cream to skimmilk is obtained and more of the fat globules are left in the skimmilk, he explained.

"Furthermore, nothing is to be gained by increasing the speed over that recommended by the manufacturer. The cream will test higher and there will be unnecessary wear on the machine parts. If it is desired to regulate the richness of the cream, proper adjustment should be made of the cream or skimmilk screw. It is just as important to operate the separator at the speed indicated on the handle of machine as it is to see that the milk to be separated is of the right temperature and that it flows into the machine at the proper rate. All three of these points must be watched or else there is likely to be a heavy waste of cream."

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX March 31, 1926 Number 13


## New Building Strengthens College's Poultry Program

With a new two-story building located on the 35-acre poultry farm at the College of Agriculture, the institution is now better equipped than at any time in the past to take care of the needs of one of the leading poultry states of the country. Illinois has more chickens on farms than any other state in the country except Iowa and the gradual development which has taken place in the college's program during the past few years is an effort to render more effective service in helping the state's chicken raisers solve their many problems. The new building, which is 24 by 60, was erected as a service building for the poultry plant. It is of frame construction with a concrete foundation and concrete basement. A part of the basement is given over to an incubator cellar, while a candling room and space for egg storage also are located downstairs. Part of the first floor is given over to a large judging room in which 40 to 50 birds in single coops can be handled at one time by the student poultry judging classes. The rest of the first floor is taken up with a record room. Storage space and two rooms for the accommodation of workers on the farm are provided on the second floor.

The poultry farm itself has a capacity of 1,250 head of mature stock and between 1,000 and 1,200 head are kept on it at all times. In addition, between 5,000 and 6,000 chicks are hatched each year. All birds on the farm are trapnested and most of the chicks are pedigree hatched, thus making it possible to get rid of hens which show low fertility or low hatchability or both. One of the features of the farm is that it provides for the feeding and handling of the birds under strict sanitation principles. In a limited way a start is being made to breed up birds for higher egg production. Nine other distinct lines of work on different poultry breeding, feeding and management problems also are being conducted either by the poultry division alone or in cooperation with one or more other divisions of the animal husbandry department.

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## Pasturing Bluegrass Too Soon Increases Feed Shortage

Summer feed shortages, which are keenly felt almost every year by the dairy interests of Illinois, could be relieved somewhat if herd owners, especially those in the central and southern part of the state, did not use their bluegrass pastures in the spring until the grass had a good start, it is pointed out by W. J. Fraser, dairy farming authority at the College of Agriculture. Many farmers in central and southern Illinois now turn their cows out on bluegrass pasture almost as soon as it turns green in the spring and consequently fail to get the maximum amount of feed from these pastures later in the season. To make matters worse, these same pastures are kept eaten down close to the ground until freezing weather in the fall and thus are not allowed to store up nutriment in the roots to make an early and strong start the following spring. Bluegrass pasture in central Illinois should not be used before the 5th to the 15th of May, but can be pastured a little earlier than this in the southern part of the state.


Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

## Most Useful Tillage Implement May Be Power Waster

The most useful tillage implement on the farm, the disk harrow, may cause heavy power losses and poor seed bed preparation, if the disks are not kept sharp and the bearings properly adjusted and thoroughly lubricated, according to I. P. Blauser, of the farm mechanics department, College of Agriculture. Few farmers attend to the very important matter of keeping the disks sharp. Ordinarily they should be sharpened every two or three years and in many cases every year, he said.

The material used in the disks is exceptionally high grade tool steel, but nevertheless they get dull from use, especially when they are used in stony ground. If the disk harrow is to be moved from one field to another over stone roads, a transport truck or transport wheels are very desirable. To make a dull disk cut as deep as a sharp one, the angle of the gang must be increased, thus putting extra strain on the bearings and causing heavier draft.

Keeping the bearings properly lubricated and adjusted is next in importance to keeping the disks sharp, if the draft of the disk harrow is to be reduced to the minimum. The bearings of a disk need special attention because they are working under very difficult conditions. For one thing they should be kept thoroughly greased or dust is sure to work into them. It is well to remember the saying that, "So long as grease is working out of a bearing, dust cannot work in". This is the safest rule to follow.

Most disk bearings are made either of chilled iron or maple impregnated with oil. Chilled iron bearings are commonly used on the rear gangs of a double disk harrow, since there is considerable thrust on the bearings due to the gangs throwing the dirt inwards. Since there is no reserve oil in the chilled iron bearing as in the wood bearing, it is especially important that they be kept well lubricated. Bearings that have become worn by long usage or through lack of lubrication should be replaced with new ones,which are inexpensive and easily installed.

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## Early Market For March Pigs Now Seems The Best Plan

Carrying March pigs over for fattening in November and December, a practice which seems to be common on many Illinois farms, is a source of considerable loss in farm pork making operations, it is pointed out by W. E. Carroll, chief of swine husbandry at the College of Agriculture. Spring pigs should be at market weight when they are six or seven months old, if they have been handled properly, he said. This seems to be especially desirable this season because of the probable value of hogs marketed early in the fall.

"Many farmers from Saline to JoDaviess county have spoken of fattening their March pigs during November and December. This practice may be necessary if the pigs are raised on worm infested ground and fed poorly balanced rations. On the other hand, if pigs are started on worm free premises and pushed along on a balanced ration of self-fed corn and tankage or a mixture of two parts of tankage and one part of linseed oil mealsupplemented with corn and pasture they will easily reach market weights by the time they are six months old. It thus will be unnecessary to carry them over an extra two or three months. Even when this is done on a light ration, it is rather expensive. It seems that this will be the case this year in the face of the cheap old corn which may be fed. It would seem wise therefore for farmers with March pigs to push them for early marketing."

## Clover Leaf Weevil Is Numerous, But Clover Is Not Doomed

Clover leaf weevil, one of the serious insect pests of the clover crop, has lived through the winter in great numbers in Illinois clover fields, but it is unlikely that the pest will be severe enough to completely destroy the red clover crop, which is just now getting started, according to J. H. Bigger, entomologist of the state Natural History Survey. Farmers, therefore, should not be discouraged if their red clover is late in starting this spring or if the leaves are eaten off or full of holes and the field becomes ragged early in the season, he said. A fungus disease very often controls the clover leaf weevil before the clover crop is destroyed and this is quite likely to happen this season. The growth of clover in infested fields, therefore, may be retarded but it probably will survive in a satisfactory manner and produce clover hay or seed.

In a way, this check in the growth of the clover crop might turn out to be an advantage, especially to those growers who are taking up the practice of getting their seed from the first crop. This advantage would come through the fact that the crop would be delayed long enough in blooming to escape the worst of the infestation by the first brood of such clover seed insects as the clover seed chalcid and the clover seed midge. The clover leaf weevil also may delay the first crop long enough to allow fertilizing insects to multiply, in which case the seed crop probably would be increased.

Farmers therefore are being advised not to plow under their clover fields, even if they do take on a ragged look early in the season, but instead to make the stand uniform by clipping or pasturing to promote a uniform growth and bloom. In severe cases, perhaps, it may be advisable to turn under the crop.

Just now the clover leaf weevil can be found as a small green, fat bodied worm hidden about the base of the plant. Later the insect turns to a brown snout beetle about one-fourth of an inch long. A few of these may be found in the field at this time.

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## Get More Milk From Fewer Cows By Herd Improvement

More milk from fewer cows summarizes the improvement which Rapp Brothers, Lee county dairymen living near Sublette, made in their methods as a result of being members of their county dairy herd improvement association. Recently in one month they got $69.06 more worth of milk from 12 cows than they had during the corresponding month of the previous year from 14 cows, according to figures compiled by H. E. Jamison, dairy extension specialist of the College of Agriculture.

A year ago during the month in question, the 14 purebred and grade Guernseys owned by Rapp Brothers gave a total of 9,640 pounds of milk containing 472.6 pounds of fat. This production was not what it might have been, for the cows had freshened in rather thin condition and were not fed a properly balanced ration. Three of the best cows were lost during the year and one heifer freshened. This left 12 cows in the herd. The production of those 12 during the corresponding month of this year was 12,270 pounds of milk containing 587.7 pounds of fat, or an increase of 2,630 pounds of milk and 115.1 pounds of butterfat from two less cows. At the local condensary price of 60 cents a pound for butterfat, the value of this increase was $69.06. Rapp Brothers consider the increase a striking demonstration that it pays to have cows in good flesh at freshening time and to feed them the correct amounts of a balanced ration.

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Volume IX April 7, 1926 Number 14


## Simple System Makes Saline County Land Yield More

Starting out 15 years ago with some of the less fertile, rolling land of Saline County, the College of Agriculture has, by the use of a simple system of soil improvement, built up that land to the point where it is now producing yields of corn, wheat, oats and hay which are considerably above the average for the county. The demonstration is being conducted on the soil experiment field which the agricultural college maintains near Raleigh.

Use of limestone and sweet clover on the field has boosted the yield of corn to 40.5 bushels an acre as an average for the four years ending in 1924, according to H. J. Snider, assistant chief of the college's soil experiment fields. When rock phosphate was used in addition to the limestone and sweet clover, the yield was 45 bushels an acre as an average for the four years. The respective yields for these two treatments in 1925 were 37.2 bushels and 54 bushels of corn an acre. In contrast to this, the four-year average yield of corn for the entire county is only 28 bushels an acre, while untreated land on the experiment field yielded an average of only 15.5 bushels an acre for the same four years.

The four-year average yield of wheat under the limestone and sweet clover treatment is 13.8 bushels an acre, while last year the yield from this treatment was 22 bushels an acre. The use of rock phosphate in addition gave one bushel more an acre as an average for the four years, while in 1925 it gave an increase of 4.6 bushels an acre. The county average for wheat yields during the four years is only 11 bushels an acre.

Oats grown under the limestone and sweet clover treatment has made an average yield of 26.6 bushels an acre for the four-year period, and last year it made 32.2 bushels an acre. When rock phosphate was used in addition to the limestone and sweet clover, the average yield for the four years amounted to 30.6 bushels an acre, while last year it amounted to 40.3 bushels an acre. During the same four years, the untreated land on the experiment field has averaged only 14 bushels of oats an acre, while the county average for the same period was 22 bushels an acre.

Hay has averaged only a half ton of poor quality hay an acre during the four years on the untreated land of the experiment field. When given the limestone treatment, however, the land produced an average of $1\frac{1}{2}$ tons of high quality hay an acre as an average for the four years, while in 1925 the yield was $2\frac{1}{4}$ tons an acre. The county average for the four years is less than 1 1/3 tons an acre.

A rotation of wheat, corn, oats and hay is followed on the experiment field, the hay being a mixture of red clover, alfalfa and timothy. This gives an excellent crop on the treated land, according to Snider. The sweet clover is seeded in the wheat and plowed under in the spring as a green manure for corn.


Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

## Wool From Illinois Is Poorly Prepared For Market

Illinois is one of the half dozen states east of the Missouri River which are listed by the Boston Wool Trade Association as the worst offenders in the careless preparation of wool for the market, according to W. G. Kammlade, in charge of sheep husbandry at the College of Agriculture. This failure to put wool in proper shape for marketing is reflected in the profits which growers get from their product, he pointed out. The mere presence of straw or chaff alone in the wool may cause a loss of some ten cents a pound, or from 75 cents to $1 a fleece.

"This matter of chaff and straw in the wool is one of the worst things with which manufacturers have to contend. Refuse of this kind can get into the fleece either through carelessness in feeding, unswept floors at the time of shearing or poor storage after shearing. No great effort is necessary to avoid the loss which this refuse causes and Illinois growers might do well to guard against it in shearing this spring. Preparation of Illinois fleeces can be further improved by the removal of all tags and dirty locks after shearing. These should be kept separate from the rest of the wool. Black wool also should be packed separately.

"There evidently is a great deal of carelessness in handling fleeces after shearing. The tendency is to roll the fleece in any old way and tie it with anything from half-inch rope to baling wire. The proper way to roll a fleece is to spread it out on the floor, flesh side down, and then fold in the legs and belly wool so that the fleece will be about two and a half feet wide. Then start at the rear of the fleece and roll toward the head. The head and neck wool should be turned so that this part will be underneath the wool from the shoulder when the rolling is complete. When the fleece is then tied it will show the flesh side and be attractive. Rolling in this way brings the wool from the shoulder and side on the outside of the fleece. The wool from these parts is the best wool grown by the sheep.

"When the fleece is tied, either paper or glazed twine of moderate size should be used and not more than two strands put each way around the fleece. About seven or eight feet of twine is ample to tie the average fleece. The Boston Wool Trade Association looks with disfavor on the use of the wool tying box, as it gives the fleece a blocky, heavy appearance which is certainly not an advantage."

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## Illinois Above Average In Farm Home Improvements

Despite the fact that only about 43 per cent of Illinois farm homes have as much as a simple water system, like the sink and pump, and only 5.9 per cent have complete water systems, this state is far above the average for the United States in the matter of farm home improvements, according to F. P. Hanson, farm mechanics extension specialist of the College of Agriculture. The federal department of agriculture estimates that only 10 per cent of the farm homes of the nation have running water.

"Not only is Illinois above the average in this respect, but also many farmers within the state are anxious to make their homes modern. The planning and development of water and plumbing systems is explained in detail in Circular 303, "Water and Plumbing Systems for Farm Homes", which may be obtained from the college.

## Disease Authorities Concerned Over Rabies Situation

Hydrophobia, or rabies, ordinarily thought of by most people as a hot weather disease of dogs, is cropping up throughout Illinois and during the first three months of 1926 alone, a total of 19 positive cases have been diagnosed at the animal pathology and hygiene laboratory at the College of Agriculture, according to an announcement by Dr. Robert Graham, chief of the laboratory. Rabies may occur during any month or season, but the unusually large number of cases which have developed during the past three months is a forewarning of a situation which may become serious, he pointed out.

Destruction of ownerless dogs and the immunization of other dogs with the rabies vaccine probably would reduce the amount of rabies in Illinois to a minimum, in the opinion of Dr. Graham. Other preventive measures which he advocates are to avoid handling strange dogs or dogs suspected of being mad and to kill and destroy all dogs which are suspected of being rabid, unless a laboratory diagnosis is desired. If such a diagnosis is desired, the dog should be confined until it dies and the head then sent to a properly equipped laboratory.

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## Herd Improvement Work Is Ushering In Better Dairying

Illinois now has more dairy herd improvement associations operating within its boundaries than at any one time before and, as a result, marked progress is being made in loosening the hold which unprofitable cows and inefficient methods have on the state's dairy industry, C. S. Rhode, dairy extension specialist of the college of agriculture, reports. In all, there are now 31 of these associations with a membership of approximately 800 of the state's leading dairymen. Around 14,000 cows owned by these dairymen are being tested monthly for milk and butterfat production and their owners otherwise aided in the improvement of their herds.

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## Unusual Winter Gains Are Made By "Sanitation" Pigs

"Sanitation" pigs which last year were carried over to be fattened on new corn have made unusually good gains during the past winter, according to reports reaching the College of Agriculture from farmers in the state who followed this plan. One of these farmers, Charles Snyder, Versailles, reports that the sanitation pigs which he fattened in this way gained an average of 231 pounds each, or practically two pounds a head daily, when fed for 118 days during the past fall and early winter.

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## Eighteen Clubs In Prospect For Special Dairy Train

Eighteen dairy calf clubs for farm boys and girls probably will be organized in counties along the Cairo division of the New York Central Railroad in connection with the special "dairy club" train which will be operated over that division during the first week in May through the cooperation of the railroad, the College of Agriculture, state and national dairy breed associations and the National Dairy Council.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX April 14, 1926 Number 15


## Seed Treatments Not "Cure-All" For Corn Diseases

Although the experimental treating of seed corn for the control of corn diseases has given results which are encouraging in some respects, less than one-tenth of a complete control of all corn diseases can be obtained by seed corn treatments as they now exist, according to Benjamin Koehler, crop pathologist of the College of Agriculture. He has conducted seed treatment experiments in cooperation with J. R. Holbert and C. S. Reddy, of the federal department of agriculture. Scores of farmers who are writing to the college for advice on the treating of their seed corn are being told that seed treatment is by no means a "cure-all" and can never take the place of good seed corn selection and good breeding.

"At the present time, seed treatment is effective only in the case of root rots and seedling blights, according to Koehler. There are five diseases of this kind and of these five, two can be greatly lessened by seed treatment, provided the diseases were not severe enough to kill the kernel. These two are the Diplodia kernel infection and the Gibberella kernel infection. In the experiments to date, the other three diseases in the group of five have not been lessened by seed treatment. Of the five seed borne diseases, the three that are not affected by seed treatment are, as a group, probably doing more damage over the state than the two that are controlled by seed treatment.

"In a year such as the present one when the Diplodia disease is unusually abundant in most parts of the state, seed treatment with the various chemical compounds will very likely be worth the trouble and expense involved. With reasonable care, no harm at least is likely to result from the use of these chemicals on corn and there is very little danger in giving them a trial. However, in the case of the other corn diseases which include ear rots, stalk rots and smut, seed treatment is of little avail. Even in the case of root rots, seed treatment may not be effective, for this disease also is carried in the soil, in which case seed treatment cannot control it.

"Seed treatment cannot control the ear rots because they are not caused by infection on the seed but instead by spores produced on the previous year's corn crop and overwintered out of doors. These spores may be carried for miles by the wind. The same spores also cause stalk rots which often result in broken stalks. Corn smut also is not carried on the seed but overwinters out of doors in the same way. While these diseases cannot be controlled by seed treatment, they can be checked to a marked degree by growing more disease resistant corn. This kind of corn can be obtained by careful, intelligent selection over a period of years. This careful selection should start in the field, be continued at the drying rack and end on the germinator."

All four chemical compounds for the treatment of seed corn which are now on the market have been tested by the experiment station of the agricultural college and the federal department of agriculture. One has been tried for three years and another for two. The remaining two, as well as a number of other promising materials, have been tried only one year.


Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, Director

## Carroll Outlines Simple Plan For Feeding Pigs

A simple system of feeding suckling pigs which has been tried out on the farm of the College of Agriculture consistently makes 200-pound hogs out of the pigs by the time they are six months old and in addition holds down the cost of the gains and reduces labor to a minimum.

The system as outlined by W. E. Carroll, chief of swine husbandry at the college, is as follows:

"As the pigs come to be three or four weeks old, gradually change the sows to a self-feeder. This has been done on the college farm without danger to either sow or litter. By the time the pigs are four weeks old, the sows may be self-fed, free choice, shelled corn and a mixture of two parts tankage, one part linseed oil meal and one part alfalfa meal or chopped alfalfa hay. As soon as pasture is available, alfalfa is omitted from the mixture.

"This method is especially adapted to conditions in which the sows are to be fattened out after the litters are weaned, for they will begin to flesh up as their milk flow decreases. In cases where the sow is to be rebred immediately for a second litter, this treatment puts her in a thrifty condition for breeding as soon as the pigs are weaned. This is advantageous to both the sow and the second litter.

"With heavy milking sows some precautions may be necessary at the time the pigs are weaned to prevent udder trouble. Such sows and litters may be taken out of the herd and fed a restricted ration the last few days before weaning time and for a short period thereafter.

"As far as the pigs are concerned, they will have taken to the self-feeder so thoroughly that they will not miss their mothers when they are taken away. The pigs can be continued on this same ration until they are marketed. Experiments have shown that this ration is about the most effective one that can be planned for growing and fattening pigs. In several tests it has proved even more effective than corn and skimmilk for dry lot feeding."

- M -

## How Much Feed Must Be Planned For A Good Cow?

Figures compiled by C. S. Rhode, dairy extension specialist of the College of Agriculture, from the records of dairy herd improvement associations operating in Illinois show that a good dairy cow eats about 5,800 pounds of silage, 1,900 pounds of hay and 2,800 pounds of grain during the year in addition to being on pasture about 5½ of the 12 months. This is almost three tons of silage, a ton of hay and a ton and a half of grain. Keeping these figures in mind when the crops are being planned for this year will enable farmers to avoid empty hay mows and the general shortage of feed which usually comes about this time of the year and cuts the profits from the dairy herd, Rhode said.

"Unless enough feed is provided to last until the middle of May, cows will get thin, milk yields will be low and pastures will be injured. First of all, dairymen should plan to grow a large enough acreage of legumes. An adequate supply of good alfalfa, soybean, clover and cowpea hay is the backbone of a good dairy ration. Farm grown grains with the addition of a small amount of protein concentrate will make a good grain mixture. Feed costs on dairy farms can be reduced to the minimum if a large enough supply of the right kind of feeds is grown."

## Fat, Trimmed Lambs Will Again Command Premium

Properly trimmed, fat, well made lambs which last year brought from $1.50 to $3 a hundredweight more than bucky, long tailed lambs this year will command a premium that will be fully as great and probably greater than the one of last year, in the opinion of W. G. Kammlade, in charge of sheep husbandry at the College of Agriculture. There are prospects of an increased supply of lambs and hence buyers will show more discrimination in regard to quality, he explained.

"A price reduction of at least $3 a hundredweight on all ram lambs is being advocated on the central markets and hence if Illinois farmers get the most for their lambs they must market them as docked wether and ewe lambs. Undesirable native lambs - trashy stuff - find a limited demand on the market.

"Untrimmed lambs yield a carcass that is greatly inferior to that of trimmed lambs as a meat product. Furthermore, the general attractiveness of a consignment of lambs is a significant factor in getting the best possible price for them. A lot of lambs that has had careless shepherding falls short in this respect.

"The offering of a real high class product is the first essential in the development of a greater demand for lamb. For the farmer to neglect to trim his lambs is to put himself at a disadvantage in endeavoring to get a good price. Many farmers still fool themselves by saying that the ram lambs in a shipment sell for as much as the other lambs. That may be true, but it is certain that the price of all the lambs has been reduced to allow for the undesirable quality of the bucky lambs."

- M -

## Model Brooder Houses Are Built In Ten Counties

Hundreds of chicks on a number of Illinois farms will be started off in the right kind of houses this year as a result of demonstrational brooder houses which farmers in ten different counties of the state have built under direction of their county farm advisers and the extension service of the College of Agriculture. Such houses have been built in Macoupin, Edwards, Gallatin, Franklin, Jefferson, St.Clair, Henry, Knox, Lee and Cumberland counties. In some of these counties the farmers brought their hammers and saws to the demonstrations and the brooder houses were put up in almost a day. All of the houses were modelled after the Illinois brooder house, which is described in Circular No. 291 issued by the agricultural college.

- M -

## Many Farms Using Swine Sanitation Principles

Sanitation is the big idea in livestock production on Illinois farms this year, according to E. T. Robbins, livestock extension specialist of the College of Agriculture. Close to 1,000 farmers in 80 counties of the state will cooperate with their county farm advisers and the extension service of the college in demonstrating how the swine sanitation system which is advocated by the college paves the way for economical and profitable pork production. Names of the demonstrators have not yet been received from all the counties, but reports from 46 counties list 741 farmers who will use the system. Henry county leads with 72 demonstrators.

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX April 21, 1926 Number 16


## Only Seven Counties Still To Be Covered By Soil Survey

Soil survey work in Illinois, which was started 22 years ago by the College of Agriculture, for the purpose of classifying and mapping all soils of the state, is now being continued for the twenty-third season with only seven of the 102 counties of the state remaining to be covered. Past progress in the survey has given Illinois a greater fund of more detailed and usable information regarding her soils than is possessed by any other state in the union, according to Dr. R. S. Smith, chief of soil physics at the college. Eight soil survey men have just taken to the field to continue the task of studying and mapping the soils of the unfinished counties. When the survey is completed the experiment station of the college will be able to give farmers specific information on the fertilization and management of all soils in the state. These eight men will work in two groups of four men each. O. I. Ellis, M. R. Isaacson, F. E. Schlotz and C. B. Middleton will work in Piatt and Schuyler counties, while D. C. Maxwell, A. A. Endres, H. Wascher and V. B. Fielder will work in Wayne and Fayette counties.

A score of years ago when the soil survey was started, little was known about Illinois soils except that they differed in producing power. In some sections of the state the wheat yields were as low as 10 bushels an acre and in others as high as 30 bushels an acre, while the corn yields ranged from 20 to 60 bushels an acre in different sections of the state. As the survey has progressed, however, the fund of information about the character of the soils of the state has constantly been growing larger. This information is gathered at a cost of about one cent an acre for the field work. When the soil survey is completed, those who did the field work will have covered a total distance equal to about 85 round trips to San Fransisco on foot. All the survey is done on foot and a distance of approximately six miles is covered for every section of land that is surveyed. In addition to this distance walked, many more miles are covered by the men in going to and from work.

Soil survey work in Illinois is scheduled to come in for special attention in connection with an international soil survey conference to be held next spring in Washington. Following the meeting in Washington, an extensive field trip is to be taken by those attending the conference and during this trip considerable time will be spent in Illinois for the purpose of studying the soils of this state and the work of the experiment station. The eagerness of internationally known soil men of Europe to come to the United States and study soils and soil survey methods is an indication of the merits of the work and the respect which Europeans hold for it.

- M -

## Corn Club Members To Show 1925 Corn At 1926 State Fair

Junior corn club members will exhibit 1925 corn at the Illinois State Fair, August 21 to August 28, according to an announcement by club officials of the College of Agriculture. This is due to the early date at which the fair is held, and the fact that the 1926 crop will not be mature enough to make an exhibit from. Those expecting to exhibit should retain the samples shown last year.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

## Groundhogs Can Be Gassed In Their Burrows At Low Cost

Damage to hay and grain crops, levee breaks and other losses caused by groundhogs can be eliminated this spring and summer if farmers will use calcium cyanide to gas the dens of these animals, according to G. C. Oderkirk, of the U. S. Biological Survey. He is working in Illinois at the present time where he is cooperating with the College of Agriculture and the Illinois State Natural History Survey in staging demonstrations over the state to show farmers how to exterminate this pest.

April and May are the two best months in which to gas the groundhogs and for a few hours time spent on this work satisfactory control can be secured at a cost of not more than 3 cents for each hole treated, according to Oderkirk. The burrows can be treated during April, May, June and July without injuring other animals. State laws, however, prohibit the use of calcium cyanide in burrows other than those of the groundhog and care therefore should be taken not to injure other wild life.

The flake form of calcium cyanide is recommended for gassing the groundhogs. When this material is exposed to the air or to the moisture of the soil, it gives off hydrocyanic gas. A mixing spoon level full of the calcium cyanide flakes should be placed as far down the burrow as one can reach and the burrow then closed with a handful of weeds covered with several spadesful of earth. All holes should be treated with the cyanide flakes and any holes that are found opened after about one week should be retreated.

There is no danger to a mature person in handling the cyanide if ordinary precautions are used. The flakes should not be handled in a closed room and when they are handled in the open the head should be kept out of the fumes as much as possible.

A better clean-up of the groundhogs will be secured if all the farms in one locality are treated at the same time, according to Oderkirk. He suggests therefore that all the farmers in a community buy their cyanide together.

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## Many Cows Are Making Bid For Honors In Fat Production

Fifty-six dairymen in 14 different Illinois counties have one or more cows which are well on their way toward winning a gold medal and a membership in the Illinois 500 Pound Butterfat Cow Club which is being fostered by the College of Agriculture to show that good cows, proper feed and the right kind of care and management are the things that make for economical and profitable milk and butterfat production. A summary of the records being made by the five hundred cows which have been nominated for membership shows that these 56 dairymen are the owners of the 83 cows which have finished the first three months of their allotted year with more than 150 pounds of butterfat to their credit. If they can produce 500 pounds of fat by December 31 they will have met the requirements of the club.

Last year at the end of the first three months, only 65 cows had passed the 150-pound mark, despite the fact that the number of cows nominated for membership in 1925 was slightly larger than it is this year. This indicates that dairymen with cows entered in the club picked up some helpful pointers on feeding and management as a result of their experiences last year, according to C. S. Rhode, dairy extension specialist.

## Ford Farmers Get Good Sires Cheap Through Cooperation

By organizing a cooperative Guernsey breeding association, farmers in Ford county are now using some of the best purebred Guernsey sires in Illinois at less cost than if they bought and used a grade or scrub breeding animal, according to C.S. Rhode, dairy extension specialist of the College of Agriculture, who visited the county and helped organize the association.

The association was formed about a year ago at which time three high class bulls were bought by the organization. The association was financed by selling 60 shares of stock, at $5 a share, in three different communities of the county. This money was used to buy the bulls and build a paddock for each one. If a farmer had five cows which he wished to breed to the bulls, he bought five shares of stock at $5 each, making his total investment $25. For this $25 he has the privilege of breeding five cows each year to the association bulls. One bull was placed in each of the three communities and every two years the animals will be changed from one community to another to prevent inbreeding. The members in each community decide who shall keep the bull. Then they all pay their proportionate share of his cost of keep.

Just recently members of the Ford county association added two more sires to their string and they are now looking for a sixth one. These six sires will give them service for a period of six or eight years without the necessity of their having to buy additional breeding animals. The two bulls recently added to the association came from the agricultural college herd and both of them are from high producing ancestry. The dam of one of them has a record of 726 pounds of butterfat in a year. Also one of the bulls was shown at the National Dairy Show last year.

Associations similar to the Ford county one are operating successfully in JoDaviess, Moultrie, Champaign, Jefferson, Monroe, Randolph, Effingham and Franklin counties. They are organized through the cooperation of interested dairymen, farm advisers and the agricultural college in the interests of higher producing herds and more profitable dairying.

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## Shipping Association Officials Seek Improved Methods

Officers and managers of cooperative livestock shipping associations in Illinois are keeping alive to methods whereby they can improve the organization and operation of their associations and thereby aid farmers in the more orderly marketing of their stock, according to E.T. Robbins, livestock extension specialist of the College of Agriculture. This fact was evidenced by the interest which these officials showed in 18 county meetings held for them during the past winter through the co-operation of county farm bureaus, the College of Agriculture and the Illinois Agricultural Association. These county meetings took the place of district meetings held for the officers and managers in former years. In 1925 there were 12 district meetings and in 1924 there were nine.

Counties in which meetings were held during the winter included Champaign, Christian, Clay, Coles, Douglas, Effingham, Ford, Grundy, Iroquois, Macon, Macoupin, Marshall-Putnam, Piatt, Scott, Stephenson, Shelby, Warren and Wayne. The object of the meetings was to bring them within easy reach of the greatest possible number of shipping association officers and managers. E.T. Robbins, livestock extension specialist, handled the agricultural college's part of the program at these meetings.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

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Volume IX April 28, 1926 Number 17


## Conqueror Melon Is Resistant To Wilt In Illinois

Watermelon wilt, a disease which has wiped out the melon industry in many parts of Illinois, no longer holds the threat that it once did, according to H. W. Anderson, associate chief of pomological pathology at the College of Agriculture. Tests which the college has conducted in White county show that the Conqueror, a wilt-resistant variety of melon developed several years ago by the federal department of agriculture, is resistant to the disease under Illinois conditions. Furthermore, when grown in Illinois, this variety proved to be of good quality and sold quite readily to the local trade in White county. Ready sale of the Conqueror melon and its high resistance to wilt has encouraged growers to continue planting it and many no doubt will give it a trial this year. A limited amount of seed of this variety may be obtained from the farm bureau in White county.

Watermelon wilt is a soil-carried disease that lives for many years in the soil. Consequently, when the land once becomes thoroughly infested it cannot be used for at least ten years for melons. When the Conqueror melon was developed as one means of relief from the disease, the round type of melon was popular. Later the long type, such as the Tom Watson, became the favorite market melon. For this reason, the wilt-resistant Conqueror variety was almost forgotten. The White county tests, however, have served to revive the interest of growers in this variety. The trade also has taken to the new variety and in many cases it is preferred to the Tom Watson.

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## Gives Solution For Corn And Oats Surplus Problem

This country's average annual export surplus of 60 million bushels of oats and the same amount of corn could be used at home this year if only one-third of the six million farms in the United States would put an extra horse to work this spring, it is pointed out by E. T. Robbins, livestock extension specialist of the College of Agriculture. Two million horses are all that would be required to eat this surplus of 120 million bushels of grain, he explained.

"This plan would give farmers cheap power, for horses, mules and feed are all cheap, Robbins said. Grain that is used at a profit to feed teams is advantageously removed from the market. Enough horses to eat up the surplus grain could not be put to work suddenly, but many farmers are planning to profit by existing conditions. These farmers have been buying horses from less provident neighbors and are ready for the rush of spring work. On many farms, improved hitches will be used to work more horses together. For example, Fred Rising, who farms extensively in Champaign county, recently said that he has 500 acres to plow this spring and he will use 5-, 6- and 8-horse teams to do the work. He will use tandem hitches, combining the horses in two-and-three, three-and-three and four-and-four teams as described in the horse-hitch circular of the agricultural college. He will use the 8-horse team on a 3-bottom plow."


Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*

## Skimmilk Among Best Feeds For Sows After Farrowing

Nothing is better than skimmilk or buttermilk as a feed for brood sows after farrowing, says W.E. Carroll, chief of swine husbandry at the College of Agriculture. During the first few days after farrowing time, the milk should be diluted with an equal amount of water, but when the sows are on full feed they can each get as much as one to two gallons of skimmilk or buttermilk a day. On farms where these are fed, tankage is not necessary in the ration. Good legume pasture also is a valuable addition to the ration of a nursing sow. In outlining suggested rations for brood sows after farrowing, Carroll points out that during the first 12 to 24 hours after farrowing the sow should be given only water of a suitable temperature. During the next 24 hours, a pound or two of feed can be given in two feedings. The feed is gradually increased until at the end of 10 days to two weeks the sow is on full feed getting bulky feed mixtures.

One bulky feed mixture that can be fed in the dry lot the first few days after farrowing is composed of 30 parts each of ground oats, middlings and wheat bran and 5 parts each of tankage and alfalfa meal. A second mixture for this same purpose can be made from 30 parts of corn meal, 35 parts of ground oats, 15 parts each of wheat bran and alfalfa meal and 5 parts of tankage. A third mixture calls for 45 parts each of ground oats and middlings, 6 parts of linseed oil meal, 4 parts of tankage and alfalfa hay in a rack. A fourth mixture includes 34 parts of corn meal, 40 parts of ground oats, 6 parts of linseed oil meal and 15 parts each of alfalfa meal and tankage.

After a week or ten days on bulky mixtures of this kind, the sows can be changed gradually to more concentrated mixtures. One such mixture can be made from 50 parts corn, 27 parts oats or middlings, 10 parts bran, 8 parts tankage and 5 parts alfalfa meal. A second mixture calls for 54 parts corn, 30 parts oats or middlings, 5 parts linseed oil meal, 6 parts tankage and 5 parts alfalfa meal.

When the pigs no longer are in danger of getting too much milk from their mothers, a ration composed of 77 parts corn, 10 parts middlings or ground oats, 13 parts tankage and alfalfa hay in the rack can be fed. Another ration just as good is composed of 80 parts corn, 10 parts tankage, and 5 parts each of linseed oil meal and alfalfa meal. After the pigs are a month old, the sows may be self-fed if they are put on the feeders gradually. Shelled corn in one end of the feeder and in the other a mixture of 2 parts tankage, 1 part linseed oil meal and 1 part alfalfa meal or chopped alfalfa hay will make a suitable ration. Alfalfa should be omitted from all of the rations as soon as the sows get on pasture.

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## These Farmers Earned $733 For Labor And Management

Thirty-two farmers in Wabash, Edwards and Lawrence counties who last year kept financial records in connection with the farm account project of the College of Agriculture realized an average of $733 each as a labor and management wage, according to the annual farm business report for the three counties which has just been issued by the farm management department. This is their return on their labor, risk and management after meeting expenses and allowing 5 per cent interest on their average capital investment of $120 an acre in land, buildings, feed, livestock and equipment. Thirty Coles county farmers realized an average labor and management wage of only $169 last year, while the same number of farmers in Monroe and Randolph counties had $756 left to pay them for their labor, risk and management, according to the annual farm business reports recently issued by the college for these counties.

## First Entry In Half-Ton Calf Club Is From McDonough

John R. Hamilton, Bardolph, McDonough county, has nominated the first beef calf for 1926 honors in the Illinois Half-Ton Club, which is being sponsored by the College of Agriculture in the interests of more economical beef production. This is the second year for the club and considerable interest is developing among Illinois cattle feeders in the methods of feeding calves entered in the contest. A gold medal is awarded to the owner of each calf that reaches a weight of a half ton or more by the time it is a year old, the object being to show that good breeding, proper feeding and the right kind of care and management pave the way for economical and profitable beef production. The Hamilton calf is a purebred Shorthorn steer that was dropped December 4, of last year. Although it is a 1925 calf, most of the entries in the club this year are expected to be from March and April calves. Last year's winners have expressed the opinion that early spring calves have a good chance to win because they finish in cool weather.

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## Farmers Find County Plan Best For Stock Shipping

Although the local association plan for the cooperative shipment of livestock is now used by almost three times as many Illinois counties as are using the county plan, a committee of three Warren county stockmen who recently compared the two systems found that the county plan gives the more satisfactory service. There are 22 county livestock shipping associations in Illinois, while in 61 other counties the shipping is done through local associations, according to E.T. Robbins, livestock extension specialist. Warren county will continue the county plan as a result of the recommendation made by the committee. Members of the committee, Fred H. Smith, R. E. Kirby and M. E. Harris, spent nearly a month in comparing the two plans before they made their recommendation. They already had experience with the Warren county association which has been in operation for several years. In addition they studied the work of other county associations and various locals. The conclusion they reached is that properly rendered service of a county association could not be excelled by a local.

- M -

## Henry County Hog Raisers Pushing Swine Sanitation

Enthusiasm for the swine sanitation system advocated by the College of Agriculture is running high in Henry county, which has more cooperative demonstrations of this system than any other county of the state. As an example of the interest which Henry county farmers are showing in the plan, fully 200 individual hog houses have been sold by two firms at Galva this spring to farmers who will use them in their demonstrations. One lumber company has sold 130 of these houses and an elevator company has sold 70 more. Besides these made-up houses, these firms have sold lumber to many farmers who have made houses themselves. In commenting on this hog house industry, Farm Adviser J. W. Whisenand said that little hog houses dot the pastures and clover fields in all directions throughout the county. Lumber companies began making up these houses during the winter and at that time the finished houses could be seen standing along the streets ready to be hauled away. Seventy-two hog raisers of Henry county are following the swine sanitation system carefully for demonstration purposes and there are many other farmers in the county who are using the plan just for the benefit to their own hog business, according to Robbins.

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX | May 5, 1926 | Number 18


## Corn Too Thick May Be Worse Than Poor Stand

Tests made by crops specialists of the College of Agriculture indicate that farmers may lose more by planting their corn too thick than by failing to get a satisfactory stand, it is reported by George H. Dungan, assistant chief of crop production. The acre yield of grain may be reduced, the quality of the grain may be lowered and the labor needed to husk the crop may be greater when corn is planted too thick, he said.

In nine out of the thirteen years in which the tests were made, two stalks in the hill produced more corn than three stalks in a hill, according to Dungan. Planting two stalks in a hill with the hills 36 inches apart, or 9,680 plants an acre, gave the highest average yield - 50.9 bushels an acre. The next highest yield, 50.7 bushels an acre, came from two stalks a hill and the hills 40 inches apart, or 8,000 plants an acre. When the rows were farther than 40 inches apart, three stalks a hill produced slightly more corn than two stalks, but the yield of three stalks in no case was as high as that of two stalks in hills 40 inches or less apart each way.

As for missing hills and hills with only one stalk in them, Dungan says that these are not as serious as they might seem. Experiments in Nebraska showed that 56 per cent of what was lost in a hill with no plants in it was recovered in the four nearest adjacent hills, while 72 per cent of what was lost in a hill with only one plant in it was recovered in the four nearest hills. From this it can be concluded that corn roots have a very large feeding area. A corn hill is not limited to its own 3 feet or 3 feet, 6 inches of land, but instead may draw upon neighboring hills for water and plant food material.

- M -

## Farm Advisers To Be Given Peach Crop Pointers

On May 13 at Carbondale and on May 14 at Centralia, the horticultural department of the College of Agriculture will hold one-day schools for the purpose of giving farm advisers and members of county horticultural committees timely pointers on the care and handling of what promises to be Illinois' largest peach crop. R. S. Marsh, horticulture extension specialist, will lead discussions on peach thinning and cultivation; J. W. Lloyd, chief of olericulture, will speak on peach harvesting and marketing, and H. W. Anderson, associate chief of pomological pathology, will explain the control of peach diseases.

With a large peach crop in prospect, extreme care will have to be used by growers to produce a fancy grade for the market if they hope to realize a good net profit, Marsh pointed out in announcing the schools. The schools are an effort to give growers the best information available on the production of high quality peaches. The person in closest touch with the individual grower is the farm adviser and he therefore can best relay this information to the grower. Those in charge of the school not only invite farm advisers to attend, but especially ask that members of county horticultural committees come to these schools.


Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

## Seed Situation Blocks Record Soybean Acreage

Soybean acreage in Illinois this year probably would pass the record mark of 480,000 acres in 1924 were it not for the fact that the seed situation is the worst that it has been in recent years, J. C. Hackleman, crops extension specialist at the College of Agriculture, says. The supply of adapted seed is short, while the stocks which are available are generally of poor quality. This combination of circumstances is an especially unfortunate one in view of the fact that more farmers than usual had planned to use soybeans to good advantage in their cropping systems this year. The safest policy in the face of these conditions is to first select adapted varieties and then test every lot of soybeans before accepting them as seed, Hackleman recommended.

Germination tests made by the college on soybean seed sent in from all parts of the state showed that as an average for more than 220 lots of seed only 69.5 per cent of it was strong. Unfavorable weather conditions last fall at harvesting and threshing time are responsible for this, according to Hackleman. Different circumstances have combined to reduce the amount of available soybean seed. Many farmers last year planted corn instead of soybeans because of the favorable outlook for corn prices, thus reducing the acreage of soybeans grown for seed. Weather conditions last fall prevented the harvesting of much of the acreage which was planted.

Soybeans have a chance this year to play a prominent role as a substitute crop and if the seed were available a record acreage undoubtedly would be planted, Hackleman said. A greater acreage than normal will have to be planted to some substitute crop this year in view of clover failures last year and the fact that many farmers have been unable to get their prepared wheat land sown because of weather conditions. Furthermore, corn and oats prices are not encouraging enough to cause an increase in the acreage of these crops.

Considerable seed of the hay types of soybeans is available in the state, but most of these varieties are too late in maturity to be safe as seed producers north of the Terre Haute - St. Louis line, Hackleman said. Among the varieties that can be used for hay production are the Peking (Sable), Illinois 13-19, Ebony, Wilson 5 and Virginia. Other varieties which frequently are used for hay and which also are recognized as general purpose varieties are the A.K., Midwest, Haberlandt and Hurrelbrink, the latter two being adapted to southern Illinois.

Of the varieties which are safe for seed north of the Terre Haute-St. Louis line, the yellow seeded varieties probably will be in demand, because of the possibility of turning the seed into commercial channels. Earlier-maturing varieties are gradually coming into more favor. Manchu, Dunfield, Aksarben and Ito San are about of the right maturity to be safe for seed production most seasons in central Illinois.

Seed beds should be well prepared this year and, in addition, rates of seeding should be increased in proportion to the germination, in view of seed conditions and the backward spring, Hackleman said. He advises caution in the use of old seed.

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Results of some tests made by the experiment station of the College of Agriculture on the culture of peppers are reported in a new bulletin, No. 274, which has just come off the press at the college.

## Illinois Farmers Earned Fourth Less In 1925

Farm earnings in Illinois last year were more than one-fourth below what they were in 1924, according to a statement just prepared by H.C.M. Case and R. R. Hudelson, of the farm organization and management department of the College of Agriculture. Farmers in the west central part of the state were the only ones whose earnings were greater last year than they were in 1924, according to the statement. In the corn selling section of central and east central Illinois, which makes up more than one-third of the area of the state, the earnings of farmers last year dropped off about 50 per cent from what they were the year before, while in two other sections, the northern and southern parts of the state, the earnings of farmers last year were about on a par with what they were in 1924, the statement adds.

Careful farm accounts kept by individual farmers in all parts of the state in connection with a farm account project sponsored by the agricultural college were used as the basis for the statement. A total of 650 of these farm accounts were available for 1924 and 1,100 for 1925. In 1924, the 650 account-keeping farmers, who were located in 14 different areas of the state, earned an average of 6.2 per cent on their average capital investment, while the corresponding rate of earning in 1925 for account-keeping farmers in 23 different areas slumped to 5 per cent. These earnings were in addition to $600 allowed each farmer for actual labor.

Earnings of the rank and file of Illinois farmers, however, were not this high for either of the two years, the college points out. A careful study of 113 McLean county farmers located in a solid block showed that the earnings of farmers who keep accounts average about 2 per cent more on the average capital investment than the earnings of all farmers in the same locality. Thus, while the account-keeping farmers of Illinois earned an average of 6.2 per cent in 1924 and 5 per cent in 1925, the earnings of the rank and file of all farmers in the state apparently were 2 per cent less than this, or 4.2 per cent in 1924 and 3 per cent in 1925. This was a decrease of 1.2 per cent from 1924 to 1925, or a drop of more than one-fourth.

The slightly increased earnings of west central Illinois farmers for 1925 were due to favorable livestock prices and good weather which resulted in remarkably high yields, according to the college's statement. In this section, farmers feed nearly all of their crops to livestock, chiefly hogs and beef cattle.

In 1924, when they were temporarily favored by a short national corn crop and the consequent good prices for corn, account-keeping farmers in the corn selling section of central and east central Illinois realized earnings which ranged from 7 to 8 per cent on an investment which was much reduced from the 1919 level of values. In 1925, however, the rate of earning dropped about half, the range for eight different accounting areas being from 2½ to 4 1/3 per cent. The average capital investment in land, buildings, livestock, equipment and feed ranged from about $202 to $281 an acre for both years. The range in land investment was from $164 to $288 an acre.

Farmers in the northern part of the state, who held their own last year, get their chief income from dairy and other livestock products and last year the prices for these were more favorable than the prices received by the grain selling farmers. Southern Illinois farmers were able to maintain their earnings at about the same level for 1924 and 1925 largely because wheat and dairy prices were relatively much better than corn and oats prices.

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX May 12, 1926 Number 19


## Quality Peaches Are Stressed With Big Crop In Prospect

Thinning of the crop, careful spraying coupled with strict orchard and packing house sanitation, and cooperative grading and packing of the fruit are some of the steps which Illinois peach growers can take to get the best profit possible out of what now bids fair to be a peach crop that will be double any ever produced in the state before. R. S. Marsh, horticulture extension specialist; H. W. Anderson, associate chief of pomological pathology, and J. W. Lloyd, chief of olericulture, recently advocated these and other steps in speaking before one-day schools held at Centralia and Carbondale for farm advisers and members of county horticultural committees in that section of the state.

Light pruning, such as has been done in many peach orchards this year, is not conducive to high quality fruit and thinning therefore will be essential if peaches are to bring a good price on a market which now promises to be highly competitive, Marsh said in discussing the question of thinning. Thinning gives the fruits that are left on the tree large size, highly developed color and a bright lustrous finish. Furthermore, thinning is an economical practice, since it eliminates part of the harvesting and grading and at the same time does not materially cut down the total yield, Marsh said. The latter part of the "June drop" or immediately following this drop is the time to thin fruit. Marsh recommended that peaches be thinned so that remaining fruits are 4 to 6 inches apart.

In discussing control of peach diseases, Anderson pointed out that only first class peaches will find a market this year if the crop now in prospect matures. Growers therefore should make special effort to keep fruit free from blemishes and rots. Careful spraying according to the regular spray schedule, use of an additional spray before the peaches are ready to harvest and careful handling of peaches from the time they are picked until the baskets are in the cars or on the local market were recommended as some of the ways in which growers can reduce their chances of loss this year. There are several exceptions which must be observed in applying the spray to the peaches just before they are ready for harvest, according to Anderson, who pointed out that the purpose of this spray was to keep the fruit from starting to rot while it was being handled before being put into the refrigerator cars.

Formation of a cooperative organization for the purpose of grading and packing the peaches of the association members is the best way for the peach grower to make money in a big crop year, Lloyd declared in his talk on harvesting and marketing peaches. Although such a local association of growers is the proper organization for preparing peaches for market, a more comprehensive organization handling a large volume of fruit is much better equipped for doing the actual selling, Lloyd pointed out. Such a sales organization has connections in most of the carlot markets of the country, keeps in touch with these markets daily by wire and is in a position to sell the fruit where it will bring the most money, he said. It therefore is better for the local association of peach growers to affiliate with some large selling agency rather than try to make its own sales, he said.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*

## Codling Moth Threatens To Be More Numerous This Year

Favored by rather moderate temperatures during the past winter, the codling moth, one of the serious pests of apples, has come through in good condition and probably will be a little more numerous this year than during the average season, says a statement from W. P. Flint, chief entomologist of the state Natural History Survey. If wormy fruit is to be prevented, all growers of apples therefore must spray carefully, he said. During the winter months, the moths are sheltered in silken cocoons under the bark on the trunks of trees or in trash and rubbish around the trees, Flint explained. This past winter, there have been no periods of cold which were extreme enough to kill these sheltered moths.

Warnings as to the time when the different broods of codling moth will hatch and suggestions as to the best time to put on sprays for the control of this worm and other insect pests and orchard diseases are sent out by the Natural History Survey and the horticulture department of the College of Agriculture to a mailing list which is maintained for the purpose of aiding farmers and orchardists in fighting these pests. The first spray for the control of the codling moth should be applied just as the apple blossoms are falling and should be applied so thoroughly as to kill all the worms in the orchard, Flint said.

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## Grain Elevator Management Short Course June 15 to 18

Dates for the second short course in grain elevator management to be held at the College of Agriculture are June 15 to 18, it is announced by Dean H. W. Mumford. The course will follow the same general lines as the one last year which was attended by more than 100 grain men who passed a resolution requesting that a similar course be held this year. Grain elevator accounting and laboratory work in grain grading again will be stressed, both of these features being modified somewhat in the light of last year's experience. Authorities in various lines of grain work have been invited to take part in the program. Managers and proprietors of country elevators, members of executive committees of farmers' elevators and all others interested in grain marketing have been invited to attend the course.

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## Pays To Fatten Broilers For Period Of About Two Weeks

Profitable gains usually will be made by broilers that are fattened for a period of two weeks before they are sold. However, one should not expect to fatten broilers for longer than a two week's period, as the gains will not be rapid and profits are likely to disappear. Cockerels should be separated from the pullets and confined to a small yard. A roosting shed should be provided for the fattening birds.

A satisfactory mash mixture for fattening broilers is one composed of 2 parts of corn meal and 1 part wheat middlings. This should be mixed with milk and fed for 15- to 20-minute periods three times daily. A liberal feeding of cracked corn should be given late in the afternoon. If liquid milk is available it can be kept before the birds during the fattening period and no water need be given. Plenty of water should be provided if no milk is fed. --John Vandervort, Poultry Extension Specialist, College of Agriculture, U. of I.

## Cooperative Shipping Now Being Used By Big Feeders

Big livestock feeders, many of whom have prided themselves in the past upon the supposed advantage which their identity gave them on the stockyards market, are finding that they can sell even their straight loads of stock to better advantage through the cooperative livestock shipping association than they can by shipping such stock themselves, according to E. T. Robbins, livestock extension specialist of the College of Agriculture.

As proof of this he points out that 12 straight carloads of livestock from as many different owners were included in the total of 27 loads shipped during a recent week by the cooperative livestock shipping association in Adams county. One of these straight loads was made up of 1,430-pound, white-faced steers which the Chicago Producers' Commission Association sold at the top of the market. Soon afterward, one of the largest feeders of Adams county consigned a 10-car shipment of 205 cattle through the county shipping association.

"When owners of whole carloads of high class stock consign their shipments through the shipping association, it is evident that the service of the cooperative is exceedingly good. The Adams county association has shipped from 610 to 795 cars of livestock each year for the past six years. In addition to prestige of this kind, the patron of the shipping association gets the benefit of insurance and expert service, both in the handling of stock and in the collection of any possible claims."

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## Illinois Trails Other States In State Park Movement

Although Illinois has acquired some 2,000 acres of land for state parks in one form or another, this area is relatively smallwhen compared to what has been accomplished in this respect by other states, Karl B. Lohmann, chief of landscape architecture at the College of Agriculture, points out in an article entitled, "State Parks for Illinois", which was prepared for the 1926 number of The Vista, a magazine published by the Illinois chapter of the University Landscape Architects Society. The program for a more livable and lovable Illinois must begin to emphasize the necessity for state parks even more than it has in the past, he believes.

Texas, for example, has a total acreage for state parks that is 15 times as great as that of Illinois; Michigan has 375 times as much, while New York is in possession of lands that are 850 times as extensive as the 2,000 acres of Illinois, according to figures presented by Lohmann. A single tract of land in South Dakota, known as Custer State Park, is composed of 107,000 acres.

"This difference cannot be explained on the grounds that there are no existing spots available for the purpose. There is indeed a wealth of natural beauty in all parts of Illinois that is well worth preserving; rugged and interesting forests are to be found, typical prairie land, bogs, mountains, terminal moraines, large river systems and valleys. Lake and lake shores also are included, as well as tamarack and cedar swamps, native fern gardens, water-falls framed by high cliffs, not to mention springs, canyons and bluffs."

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX May 19, 1926 Number 20


## Only One-Third Enough Colts On Illinois Farms

Illinois farms at the present time have only about one-third enough colts to maintain the present horse supply, it is indicated by a study which R. C. Ross, of the farm organization and management department, College of Agriculture, has made of the ages of horses and mules on 626 representative Illinois farms at the beginning of the year. On these farms, the horses and mules less than 3 years old, which include the colt crops of the past three years, made up only 10.6 per cent of the total number. If it is assumed that horses average 10 years of productive work, those under 3 years of age should make up 30 per cent of the total, no allowance being made for sales from the farm, Ross pointed out.

The 626 farms on which the study was made represented all parts of the state and included 4,521 horses and mules. The average age of these was 9 years, while the number of 9-year-olds also was greater than that of any other age, making up 8.38 per cent of the entire number. Except for five-year-olds, the proportion of horses and mules decreased steadily with each age group from the 9-year-olds down to last year's colts, which made up only 2.8 per cent of the horse population on these farms. If colts were produced just for replacement of the farm horse supply, the largest number of horses and mules would occur in the youngest age group and gradually decrease with the older groups. Instead, up to the age of 10 years, the exact reverse is the condition on these farms.

"To maintain the present horse supply with the present rate of breeding would require that the period of usefulness be extended from 10 years to 28.3 years, or that the horses reach an average age of 31.3 years without becoming pensioners. It is true that half the farms studied used tractors. However, there were no appreciable differences in ages of horses on farms using tractors as compared with those using horses only for power. Of all the horses and mules included in the study, slightly more than a fifth, or 21.9 per cent, were less than 5 years old; a third, or 33.3 per cent, were 5 years and less than 10; 28.2 per cent were 10 years and less than 15; 12.6 per cent were 15 years and less than 20, and 4 per cent were 20 years old or older. These figures check quite closely with those obtained in a similar study made by the federal department of agriculture about a year ago."

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## Five Soil Field Meetings In Southern Illinois

Spring field meetings have been scheduled for five of the soil experiment fields which the College of Agriculture maintains in the southern part of the state, it is announced by F. C. Bauer, chief of the fields. The purpose of the meetings will be to give farmers the latest results from the fields and show them the merits of the soil improvement system advocated by the agricultural college. The series of meetings will open on the field near Newton on May 24 and be continued at Odin, May 25; Sparta, May 26; Lebanon, May 27, and Carlinville, May 28. At each field the meeting will start at 1:30 o'clock, with the exception of the Odin meeting, which will start at 10 o'clock in the morning and be continued at 1:30 o'clock in the afternoon on Poorland farm of the late Cyril G. Hopkins.


Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*

## Neglecting Leaf Hoppers On Potatoes Is Costly

Experiments made at several points in Illinois by the state Natural History Survey show that potatoes which were given additional sprays for the control of the leaf hopper yielded about one-third more than potatoes sprayed only for the control of the common potato bug.

"All commercial potato growers of necessity put on one or two poison sprays for the control of the Colorado potato beetle, or the common potato bug, as soon as the bugs enter the field, S. C. Chandler, assistant entomologist of the survey, said. Arsenate of lead, or calcium arsenate, 2 pounds to 50 gallons of water, is used for this purpose. In the principal potato growing sections, the vines may be destroyed entirely if this is not done. A serious, though less noticeable loss caused by the leaf-hopper, continues throughout the season. The leaf hopper feeds on the plants, and causes tipburn which curls up the leaves and makes them turn brown and die. Early blight also comes in, affecting the leaves in a slightly different way. Fortunately, both these troubles are controlled by the same spray, Bordeaux mixture, used at 4-4-50 strength. Four applications at 7- to 10-day intervals are recommended, starting when the plants are six to eight inches high. The poison for the potato beetle, or bug, can be combined with these sprays when necessary. Three nozzles, arranged so that the plant is sprayed from above and below, should be used on power sprayers. Two hundred pounds pressure should be maintained and 100 gallons of spray applied an acre."

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## Late Emergency Forage Crops Are Again In Demand

A late spring, delayed growth of meadows, pastures and other crops, winter killing in old alfalfa fields and the inability of farmers to seed early emergency forage crops has brought late emergency forage crops to the front this spring and these crops will again be important on Illinois farms, according to John Pieper, assistant chief of crop production at the College of Agriculture. There is at least one late emergency forage mixture that will make excellent hay, judging from the results of investigations at the experiment station of the agricultural college. This mixture is a combination of soybeans and sudan grass which are seeded together about the first of June. The soybeans are seeded at the rate of 45 pounds an acre and the sudan grass at the rate of 15 pounds. A hay variety of soybean is used and if sudan grass is not available, German millet may be substituted.

Sudan grass seeded alone at the rate of 20 pounds an acre will make considerable hay, but the quality of it will not be as good as it is when the sudan grass is sown with soybeans. Likewise, German millet willmake lots of hay, but it, too, is of inferior quality when grown alone. Soybeans seeded alone at the rate of a bushel to a bushel and a half an acre will make an excellent hay that is practically equivalent to alfalfa hay, although the yield is not quite as big. All of these late emergency forage crops can be seeded between now and the middle of June.

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## Summary Shows Wide Scope Of Farm Advisory Work

In addition to reaching more than a half million people last year in 8,755 meetings held in the interests of better farming, farm advisers working in 94 Illinois counties made 59,323 farm visits, held 381,356 office consultations and wrote 261,177 personal letters. The advisers also organized 355 standard junior clubs of farm boys and girls with a total enrollment of 6,528, of which 4,925 completed the year's work.

## Poor Quality Alfalfa Hay Found On Dairy Farms

Alfalfa is now made into such poor quality hay on Illinois dairy farms that only a few dairymen get the good results that they should from this crop as a feed for dairy cows, W. J. Fraser, dairy farming specialist at the College of Agriculture, says. This poor quality results from faulty methods of hay making which cause a large percentage of the leaves to shatter off. Only 10 per cent of the dairy farms in northeastern Illinois which recently were visited on an inspection trip by Fraser and his class of students had alfalfa hay of really good quality, he said. Much of the alfalfa hay on these farms had lost at least one-third of the leaves and in some cases the hay had been made in such a poor manner that at least two-thirds of the leaves had been shattered off. On two of the farms visited, the alfalfa hay was almost nothing but bleached stems that contained less protein than timothy and little more than oats straw.

The fundamental basis upon which the proper curing of alfalfa hay rests is saving the leaves in their green state. In well made alfalfa hay, half of the weight is leaves and half stems, and the half composed of leaves contains nine times as much digestible protein as do the stems. Furthermore, the leaves also contain most of the minerals in the alfalfa plant and, in addition, it is the leaves that make alfalfa palatable. Alfalfa hay therefore must be raked just as soon as it has wilted and before the leaves are dry enough to shatter. It is necessary to put the hay in cocks to get the best results in many cases. If the cocks are opened out into three parts, turning each part along the windrow from which the hay came, it can be taken up as clean with the hay loader as if it had not been cocked, according to Fraser.

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## Dairy Calf Club Special Places 114 Purebreds

A total of 114 purebred dairy calves which will be raised by farm boys and girls as their junior club project were placed on farms in eight southeastern Illinois counties as a result of the dairy calf club special train which the New York Central Railroad recently operated over its Cairo division in cooperation with the College of Agriculture and other interested agencies, according to club officials of the college. Ninety calves were actually delivered from the train to club members along the route. Calves for 12 other of the club members are to be bought and delivered as soon as suitable animals can be located, while calves for the remaining 12 club members were bought locally. Officials of the railroad say that 16,650 people visited the train to see the exhibits and hear the speeches which were made at each of the 14 stops.

The 114 farm boys and girls who received the calves are members of nine standard boys' and girls' clubs which were organized by the agricultural college and farm advisers in the territory through which the train passed. The largest of these clubs is at Harrisburg, where 32 bred Guernsey heifers were delivered to club members. Other clubs were organized at Georgetown, Marshall, Hutsonville, Robinson, Lawrenceville, Mount Carmel, Vienna and Mound City.

In addition to towns where clubs previously had been organized, stops also were made at Danville, Chrisman, Paris, Carmi and Cairo. One of the largest of the meetings which were staged at these stops took place at Harrisburg, but Georgetown, Mount Carmel and Mound City also had good turnouts. The train carried eight cars. In addition to the club calves and the demonstration cows, there were educational exhibits from the agronomy and dairy departments of the agricultural college, the state department of agriculture and the National Dairy Council.

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX | May 26, 1926 | Number 21


## Barberry Causes Loss Of Two Million Bushels Of Wheat

During the past seven years, the presence in Illinois of common barberry, a woody shrub, has meant a reduction of more than two million bushels in the state's wheat crop, according to a new publication which the College of Agriculture is preparing to issue soon in the interests of barberry eradication. This shrub harbors the spores, or seeds, of black stem rust, one of the most destructive pests of small grain crops in Illinois and the northern states, according to the publication. If all common barberry bushes were eradicated, the life cycle of the fungus which causes black stem rust would be broken and recurrent epidemics of the disease thus prevented, the publication adds.



G. C. Curran, associate pathologist in the federal bureau of plant industry, and Benjamin Koehler, crop pathologist of the agricultural college, are preparing the publication. They point out that when the campaign against the common barberry was started in 1918 these bushes were well established over the state and were spreading at an alarming rate. Since then, 328,000 bushes have been found and destroyed. At the close of 1925, about 75 per cent of the total area of the state had been covered by field men in a systematic search for barberries. Many hundreds, however, remain, and the united efforts of individual citizens and all agricultural agencies will be necessary to stamp them out, according to the publication.

One of the best ways of identifying the barberries is by the layers of bright yellow inner bark and wood that are exposed when the dark gray outer bark is peeled off. The common barberry bush may be found wherever bushes grow and varies in height from 3 to 12 feet and averages 4 to 5 feet. When the bushes are growing in cultivated plantings, they closely resemble spirea, but when they are growing wild in woodlands and pastures their appearance from a distance is similar to that of a gooseberry bush.

Application of crushed rock salt to barberry bushes has been found to be the best method of destroying them. The salt, however, should be used with caution, since it has an injurious effect upon other vegetation, livestock and the soil itself.

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## Four Soil Field Meetings Planned For Central Illinois

Field meetings designed to show central Illinois farmers the value of modern methods of soil improvement are to be held during the second week of June on the soil experiment fields maintained by the College ofAgriculture near Bloomington, Clayton, Carthage and Oquawka, it is announced by F. C. Bauer, chief of the fields. The dates are: Bloomington, June 8; Clayton, June 9; Carthage, June 10 and Oquawka, June 11. Speeches by various members of the college agronomy department and an inspection of the crops growing on the fields will comprise the program for each meeting which will start at 1:30 o'clock in the afternoon.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

## Unique Record Made By Poultry Club In Shelby County

Farm boys and girls in the Wabash community of Shelby county have a junior agricultural club with a record that cannot be matched elsewhere in Illinois, according to club officials of the College of Agriculture. Having secured its charter in 1922, the club already has successfully finished four years of work and is now starting its fifth season with seven of the original members still in the organization. Members of the club raise poultry as their boys' and girls' club project.

When the club was organized in 1922, there were 24 boys and girls enrolled as members. The following year 42 farm youngsters became members and in 1924 the enrollment increased to 44. Last year there were 29 members. Members of the club started out early to collect honors, for at the end of the first year when the awards were made in the county poultry achievement contest, third place went to Thelma Quicksall. The following year, Thelma won first place in the contest and a free trip to the International, while Hazel Quicksall won third. The same year, 1923, the club's demonstration team, composed of Ruth Culver and Robert Quicksall, won first place in the county contest and fourth in the state contest held at the Central States Exposition and Fair, Aurora.

In 1924, the club's demonstration team, composed of Thelma Quicksall and Albert Rincker, won first place in the state contest at Aurora, while last year the demonstration team composed of Hazel Quicksall and Helen Kirn won first in the county contest, first in the contest at the Aurora fair and first in the state contest at the state fair. Hazel also was made poultry club champion of the state and of the county and was awarded a free trip to the International, while Thelma Quicksall won a silver cup for having the best pen of chickens in the county club exhibit. Last year the club raised enough money to send nine of its members to the junior club university tour, where the club won the banner for having the highest percentage attendance of any local club.

Guy V. Storm was local leader of the club in 1922 and 1923; Mrs. John Quicksall in 1924, and Mrs. Mary Quast in 1925. The seven original members who are now in the club for the fifth season are Lucille Huffmaster, Ruth Anderson, Thelma Quicksall, Nellie Haverstack, Fred Haverstack, Grace Quicksall and Hazel Quicksall.

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## Planning Dairy Feed Budgets Now Will Cut Feed Costs

Dairy feed prices are approaching their lowest level of the year and consequently dairymen who make out their feed budget now and buy what feed they need at the proper time not only will be making an important saving in feed costs but also will feed a better ration, it is pointed out by C. S. Rhode, dairy extension specialist of the College of Agriculture. A survey of the various feed markets indicates that wheat bran usually reaches the low point in June, July and August; linseed oil meal in May, June and July; cottonseed meal in August, September, January and February, and Gluten feed in May, June and July. Cutting feed costs increases the margin between the cost of producing milk and the selling price of it, inasmuch as the cost of feed makes up from 50 to 60 per cent of the total cost of producing a pound of butterfat or a hundred pounds of milk.

"Illinois dairymen should, and do, produce most of the feed that is necessary for their cows, but in most cases it is advisable to balance the home grown grains with some high protein feeds such as cottonseed meal, linseed oil meal, wheat bran and the like. It therefore is to the advantage of the dairymen to study the feed markets and determine when feeds can be bought at the best price."

## Unwise To Use Weak Bordeaux For Apple Blotch Control

Apple growers who have had a real problem in controlling blotch during past seasons should not depart from the 3-4-50 bordeaux formula recommended for the control of this disease, in the opinion of Dr. H. W. Anderson, associate chief of pomological pathology at the College of Agriculture. This is especially advisable if, in the experience of such growers, the fruit has not been seriously russetted by bordeaux. Reports recently have been issued to the effect that blotch is relatively easy to control and that sprays much weaker than the 3-4-50 bordeaux have given very satisfactory results, Dr. Anderson explained. Growers, therefore, are asking if it would not be possible to cut the cost of spraying and also to have less bordeaux russetting of the fruit by the use of this weaker bordeaux mixture.

"While there is reason to believe that a 1-3-50 bordeaux (1 pound copper sulphate, 3 pounds hydrated lime, 50 gallons of water) would control apple blotch under certain conditions, it would be unwise to use this on the entire orchard. Growers who are confident that they are applying their sprays in a very thorough manner and who have not been seriously troubled with blotch the last few years might well try this weak bordeaux on a small block of their trees one year in order to test the effect. However, the old expression that, 'it is better to be safe than sorry', applies to the use of full strength bordeaux for blotch control. Last season was unfavorable for apple blotch and the chances are that blotch will not be very serious this season. It would be a good policy, therefore, to keep the disease in check by using methods which have proved successful for many years.

"Bordeaux sprays should not be applied during cold or rainy weather. Clear, bright days should be selected if possible and if the weather continues cool, lime sulphur 1-50 should be used in place of the bordeaux mixture. In fact, on those varieties especially susceptible to russetting, lime sulphur should be used throughout the season, since it will give almost as good control as bordeaux. Full directions on how to spray for blotch control as well as other diseases and insects may be found in Circular No. 277 of the experiment station."

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## Poor Care Will Shorten Life Of Even Best Grade Of Rope

Rope of even the best grade will have a short useful life unless it is properly cared for, I. P. Blauser, of the farm mechanics department, College of Agriculture, says. Internal wear may be prevented by using pulleys of the proper size and by the application of rope lubricants. The diameter of the pulley should be at least eight times the diameter of the rope. For example, a pulley at least 7 inches in diameter should be used for a rope 7/8 of an inch in diameter. External wear can be prevented to a large extent by exercising care in the use of the rope and by using exterior coatings. Rotting of the fibers can be prevented to some extent by the application of lubricants and exterior coatings.

"A mixture of beeswax, black lead and tallow makes a useful exterior coating for rope. Another may be made of resin, black lead and tallow. Pine tar alone also is a useful exterior coating. Good rope lubricants include tallow, lard and boiled linseed oil. There are two mixtures that can be used both for exterior coatings and lubricants. The first of these is tallow and black lead and the second tallow and graphite. All lubricants penetrate much better if applied hot while the rope is running over a pulley. Mineral oil has excellent penetrating qualities and gives good protection against dampness, but causes rapid deterioration of the fibers."

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX June 2, 1926 Number 22


## Dull Sickle Makes Mower Pull 30 Per Cent Heavier

A dull sickle alone may increase the draft of a moving machine almost 30 per cent and yet this fault is only one of four things that may make mowers pull excessively hard, I. P. Blauser, of the farm mechanics department, College of Agriculture, points out. Poor lubrication, non-alignment of the cutter-bar and poor adjustment of the cutter-bar parts also cause excessive draft in mowing machines.

"Thorough lubrication of the mower is even more important in reducing friction and wear than it is in most farm machines, because of the fast moving parts of the mower. A good quality oil should be used and unless there are special oil reservoirs which feed the oil to the bearing gradually, a small amount of oil should be applied at frequent intervals rather than a large amount once or twice a day. If the mower has been in use for several years, it is a good plan to see if there is enough wear in the hinge joint between the yoke and the cutter-bar to throw the cutter-bar out of line with the pitman. The way to test for alignment is to stretch a string from the crank end of the pitman to the outer end of the cutter-bar keeping the string over the center line of the pitman. For a 5-foot cutter-bar, the outer end should be about one inch ahead of the inner end so that the cutter-bar will be exactly in line when the mower is cutting. Some mowers have special means of adjusting the alignment, while in others, non-alignment may be partially remedied by putting new pins in the hinge joint between the yoke and cutter-bar."

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## New Publication Urges Organized Peach Marketing

Illinois this year is likely to have twice as many peaches as ever before and the principal markets which are available for the crop will be congested seriously unless organized methods of marketing are used, according to a new publication entitled, "Large Peach Crop Calls For Organized Marketing", which has just been issued by the College of Agriculture. J. W. Lloyd, in charge of fruit and vegetable marketing investigations, is author of the publication.

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## College's June Program Shows Five Major Events

June will bring five important meetings and conferences to the College of Agriculture. The dates for these are as follows:

June 15, 16 and 17 - Conference of Farm and Home Advisers
June 16, 17 and 18 - Boys' and Girls' Club Tour
June 18 and 19 - Vocational High School Judging Contest
June 21, 22 and 23 - Vocational High School Teachers' Conference
June 21 to 26 - Agricultural Open House


Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director*.

## Complicated Rations Not Needed For Young Chicks

Rations for young chicks need not be complicated as long as the essentials for good growth and health are present in the feed, it is pointed out by John Vandervort, poultry extension specialist of the College of Agriculture. The poultryman can make use of the natural feeds, particularly yellow corn and wheat, to good advantage. By adding minerals and animal protein to these feeds and allowing the chicks to have access to green feed and to be outdoors in direct sunlight, the flock owner should be able to keep his chicks free from nutritional troubles.

"All chicks on the college farm this year have been started on a ration consisting of 80 parts of ground yellow corn, 10 parts of wheat middlings, 10 parts of bran, 5 parts pearl grit or ground oyster shell, 5 parts bone meal and 1 part salt. Skimmilk also has been kept before the chicks. When milk is not available and after the chicks are nicely started, say at 6 to 8 weeks of age, 12 to 15 parts of a good grade of meat scrap or tankage can be used to supply the necessary amount of animal protein for satisfactory growth.

"Chicks fed on white corn and kept on bare yards are likely to develop a nutritional trouble which resembles roup. Sore eyes, blindness and a pale, unthrifty condition are characteristic symptoms of the disease.

"If rapid growth and early maturity of pullets is expected, a complete ration should be kept before them throughout the summer.

"Methods of feeding should not be overlooked, for they may be quite as important as proper rations. Few people realize, for instance, the danger of disease infection and parasitic infestation when chickens are allowed to pick up grain from bare ground contaminated with droppings. The area near the brooder or hen house readily becomes contaminated with droppings and chickens are likely to pick up infection along with the grain which has been scattered on this bare area. The grain for old hens, as well as young chicks, should be scattered on a clean area as often as is practicable and possible. Sanitary feeding of chicks outdoors can be done by feeding both grain and mash in hoppers. An all-mash ration for chicks has been found practical and has helped in the sanitation program."

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## Eighteen Tractor Schools Reach Half Thousand

Approximately 500 Illinois tractor owners and operators learned new things about the proper repair and operation of their mechanical power units as a result of 18 tractor schools held in 15 counties of the state during the past winter and spring through the cooperation of the farm mechanics department of the College of Agriculture, farm advisers and tractor manufacturers and dealers, according to a report by F. P. Hanson, farm mechanics extension specialist. Farmers had the privilege of bringing their own tractors to the schools for overhauling, and accordingly 147 machines were worked over. The schools each lasted from three to five days and in each case an experienced teacher and mechanic were in charge of the lecture and laboratory work. Keen interest which farmers took in the schools is accounted for by the fact that there has been a steady increase during the past few years in the number of tractors and gas engines on Illinois farms, Hanson said. Census figures for 1925 show that there are 43,357 tractors alone in the state and consequently a heavy need has developed for schools where owners and operators of such equipment can get proper instruction. Counties in which schools were held included Johnson, Morgan, Jefferson, DuPage, Montgomery, Edwards, Randolph, Brown, Marion, Mason, Saline, Franklin, Madison, White and Mercer.

## Big Crop Will Make Quality Important In Peaches

Only first class peaches will find a market this season if the crop now in prospect matures. For this reason growers should make a special effort to keep their fruit free from blemishes and rots. Buyers will steer clear of orchards where there is any evidence of brown rot. Careful grading will exclude rotting fruit, but the spores of the brown rot fungus will be present and unless the fruit is carefully handled rotten peaches will appear by the time it reaches the market. Buyers will not hesitate to reject such fruit because they will have plenty from which to choose.

Some of the ways in which the peach grower can reduce the chances of loss this year are: (1) careful spraying according to the regular schedule, and (2) applying an additional spray a few days before the peaches are ready to harvest. This spray should not contain lead arsenate and it should be of such a nature as not to show on the fruit. Dry mix and self boiled lime sulphur mixtures will disfigure the fruit if used for this spray. Dritomic or sulficide are better. Using spray rods instead of guns and securing a mist spray also will aid in keeping the spray from showing on the fruit. Dusting at this time would be satisfactory, but the dust should not be blown directly into the trees and should be applied lightly. Again lead should not be used in the dust, just pure dusting sulphur. The purpose of this late spraying is not so much to protect the fruit while still on the trees but rather to keep it from rotting while being handled before it is put in the refrigerator cars.

The third way of reducing chances of rot and, in many respects, the most important way is to handle the fruit in the most careful manner from the time picking starts until the baskets are in the cars or on the local market. Brown rot will not attack uninjured fruit, but many peaches in each bushel are usually scratched or bruised by careless handling. Picking baskets should be padded, pickers should be trained to handle the fruit carefully, over-ripe fruit should be sorted out, packing tables or graders should be carefully constructed and padded, baskets should be of good construction and only sound baskets should be packed. But above all, care should be taken to keep all over-ripe and crushed fruit cleaned up and hauled away from the neighborhood of the packing shed.

If brown rot or any other rot has been observed in the orchard previous to starting picking, a special inspection should be made while the fruit is still on the trees and all rotting or cracked fruit should be picked in special baskets and taken from the orchard. The baskets should then be burned or thoroughly disinfected.

Where the fruit is to be shipped in refrigerator cars, the cars should be on the track and cooled before the peaches are hauled to the loading station. Every effort should be made to get the fruit cooled as soon as possible after it is packed. Brown rot as well as Rhizopus rot -- the two most important peach rots -- develop very slowly at low temperatures, and new infections will not take place as long as the fruit is kept near 40 degrees.

These sanitary methods might well make the difference between a big profit on the peach crop and a decided loss. No grower, therefore, can afford to neglect these precautions. -- H. W. Anderson, Associate Chief, Pomological Pathology, College of Agriculture, U. of I.

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX June 9, 1926 Number 23


## Surplus Question To Be Up At Grain Elevator Course

Grain surpluses, the crux of the present agricultural relief problem, are to be dealt with quite prominently at the second annual short course in grain elevator management which is to be held June 15 to 18 at the College of Agriculture. The question of foreign demand for American grain and grain products is to be taken up by E. G. Montgomery, chief of the foodstuffs division of the U. S. Department of Commerce; agricultural surpluses by C. L. Stewart, chief in agricultural economics at the agricultural college, and grain prices by L. J. Norton, assistant chief in agricultural economics.

Supplementing these subjects are others of vital importance in country elevator operation. The course will be open to owners and officers of country elevators, present and prospective elevator managers and their assistants, agricultural high school teachers, farm advisers and others interested in the marketing of grain. Laboratory work in grain elevator accounting and in grain grading will be given under the supervision of specialists and opportunity also will be given for those enrolled in the course to do actual grain grading to the end that the instruction can be applied directly to the home problems in elevator operation.

The laboratory and lecture work in grain elevator accounting is to be handled by Charles F. Schlatter, of the College of Commerce and Business Administration at the university, and F. E. Ringham, assistant manager, Illinois Agricultural Cooperatives Association. The main elements in a successful elevator manager will be discussed by J. W. Shorthill, secretary of the Farmers' National Grain Dealers' Association, Omaha, Nebraska; hedging and storage problems will be taken up by Frank Evans, president and general manager of the Evans Elevator Company, Decatur; grain rate structure will be discussed by J. S. Brown, manager of the transportation department of the Chicago Board of Trade; research in grain marketing problems at the experiment station of the agricultural college by L. F. Rickey, grain marketing specialist, and Norton; credits and collections by George R. Wicker, manager of the Illinois Agricultural Cooperatives Association; the efficiency trend in grain grading by W. P. Carroll, supervisor, Great Lakes Division, Federal Grain Supervision, Chicago; seed improvement problems by J. C. Hackleman, crops extension specialist of the College of Agriculture; insect control in stored grains by W. P. Flint, chief entomologist of the state Natural History Survey, and hedging and speculation by J. M. Mehl, of the U. S. Grain Futures Administration, Chicago.

H. A. Rhoades, Indianapolis; R. W. Taylor, St. Louis, and W. H. McDonald, all connected with the federal supervision of grain, will have charge of the laboratory work in the grading of corn, wheat and oats.

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Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

## Club Tour Plans Provide For 1,500 Farm Youngsters

With plans being made for 1,500 farm youngsters, a new attendance record is expected to be set when boys' and girls' club members of the state gather at the College of Agriculture June 16, 17 and 18 for their fourth annual boys' and girls' club university tour. Half the counties of the state are expected to have club members in the delegation, which will be representative of 15,000 Illinois farm children between the ages of 12 and 21 who are members of boys' and girls' clubs. The three days of the tour will be given over to talks by faculty members, trips of inspection to points of interest on the university campus and college farm, the annual "4-H" supper of the club members, demonstrations, and athletics and recreation.

Last year the attendance at the tour reached a new high mark or 1,017, one county in the northern part of the state sending a delegation whose aggregate mileage for the trip was more than 25,000 miles, according to club officials of the college.

In order that the small army of farm boys and girls may be properly housed while they are attending the tour, arrangements have been made to quarter the boys in the men's gymnasium, while the girls will live in the woman's building gymnasium. Once each day, both the boys and girls attending the tour will meet in a general assembly, but for the most part the rest of the time will be taken up with special sessions for boys and others for girls.

Speakers scheduled for talks include H. W. Mumford, dean of the agricultural college; Miss Maria Leonard, dean of women at the university; J. C. Blair, head of the horticultural department; Miss Ruth Wardall, head of the home economics department; C. T. Knipp, of the department of physics; Miss Leonore Dunnigan, staff member of a journal for farm women, and Miss Gladys Coon, National Dairy Council, Chicago.

The program for the tour will get under way at 1 o'clock Wednesday afternoon, June 17, with the address of welcome by Dean Mumford and from then until late Friday afternoon there will be something doing every minute for the youngsters. The annual supper of the club members will be held Thursday evening, June 17.

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## McLean Hog Raisers Take Lead In Star Sow Contest

McLean county farmers are taking the lead in the Illinois star sow contest which is being sponsored for the second year by the College of Agriculture and county farm advisers as a means of giving recognition to sows which raise large litters of pigs and which therefore are desirable breeding animals, according to E. T. Robbins, livestock extension specialist. Five hog raisers in that county have eight sows entered. They are S. C. Moon, Towanda; Merle King, Chenoa; Lowell Gerdes, Gridley; Gaillard Wagner, Pontiac, and Stewart Howell, Chenoa. Moon has four sows entered, while each of the other men has one sow in the contest. The star sow contest is designed to preserve the identity of pigs raised in large litters, thereby making it possible for farmers to select such pigs for breeding purposes. Last year, the first one in which the contest was conducted by the college, eight McLean county hog raisers had sows entered. Moon, who also has sows in the contest this year, had seven entered last year. The four McLean county hog raisers who have entered the contest this year in addition to Moon are new in the project. Enrollment in the contest is limited to aged sows more than 24 months old raising at least nine pigs, and young sows 12 to 24 months old raising at least eight pigs to 60 days of age.

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## Too Many Cattle Enter Show Ring Direct From Pasture

Having dairy cattle in good condition when they are led into the show ring is an important step in successful showing. Too many exhibitors lead their cattle out of the pasture and take them to the fair without making much attempt to get them ready. Such men are advertising their cattle and their breed, but advertising of this kind is hardly what they want. Exhibitors must be willing to spend some time in preparation.

Animals to be shown should be selected now and an early start made to teach them to lead readily and stand squarely on their feet so they will pose to best advantage in the show ring. Frequent handling is necessary. One month before the show the animals should be clipped all over. From this time on they should be kept in a comfortable stall and not allowed to be out of doors in the hot sun. The barn should be darkened to keep out the flies. Just before the show, the head, neck, withers, belly, udder and tail should be clipped. After the clipping, a thorough rub-down with sand paper will make the hair lie close to the body.

The horns may be put in shape by first using a rasp to take the rough scaly portion off. Next scrape the horns with broken glass or a steel scraper, then with common sand paper and finally with emery paper. Then take strips of cotton flannel and see-saw the horns, using a little pumice stone and sweet oil. A good polish can be put on in this manner. About two weeks before the show, the animals should be given a good washing. If time permits, they should be groomed every morning from this time on. About a month before the show season opens, blanket the animals heavily. Later on the heavy blankets may be replaced by lighter ones. Milk the cows out clean the night before the show and not again until after the show. A satisfactory grain mixture is 10 parts bran, 5 parts oats, 2 parts ground corn, and 2 parts oil meal. Add one peck of salt to the grain mixture. Feed plenty of alfalfa or clover hay. Give the animals plenty of water from your own containers. Make the exhibit as attractive as possible. Keep the stalls neat and clean at all times. Place a neat sign over your exhibit, giving the name of the farm and the owner. Some one should be near at all times to show the cattle to the visitors and answer questions that may be asked. C. S. Rhode, Dairy Extension Specialist, College of Agriculture, University of Illinois.

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## Open House To Stress Broader Scope of Farm Studies

Farm delegations which visit the College of Agriculture during the annual open house week, June 21 to 26, will find agricultural activities at the university centered around a half dozen new buildings and plants on the campus and college farm. Some of the new structures were inspected by the visitors last year, but practically none of them were in full use, as most of them will be this year. The group includes a beef cattle feeding plant, a poultry building, dairy barns, dairy manufactures building, a horse barn and a swine plant. In addition to these new attractions, there will be the old, well established ones, such as the historic Morrow and Davenport plots, the orchards, gardens, feed lots and laboratories, which hold something new of interest to farmers and their wives every year. Indications now are that the experimental work on the college farm will be in favorable condition for inspection during the week.

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX June 16, 1926 Number 24


## White Snakeroot Poisoning Makes Early Appearance

White snakeroot poisoning, also known as trembles or milk sick, has made its first appearance of the year in Illinois, it is reported by the animal pathology and hygiene division of the College of Agriculture. It is time, therefore, for stock owners to be on guard against this disease if the losses of 1925 and previous years are to be avoided, Dr. Robert Graham, chief of the division, points out. The disease appears only in pastured animals. The way to avoid it is to clean out the white snakeroot weed if the pasture is small and the infestation limited or, if the pasture is a big one and the infestation of the weed is a heavy one, keep horses, cattle and sheep off of it. The first case of white snakeroot poisoning to come to light this year was reported from Moultrie county. A cow was found with symptoms similar to those shown by poisoned cattle last year. White snakeroot poisoning was suspected and a sample of a weed growing in the pasture where the cow was grazing was sent to the college where it was identified as the poisonous type of white snakeroot.

The weed is known to grow in pastures in certain sections of Illinois and also is found sparingly over a rather wide area in urban and rural communities. It generally stays green during the dry weather of late summer and autumn and consequently usually causes the most trouble at that season, when pasture grasses are dry and dead. On the other hand, grazing animals sometimes will eat the white snakeroot even though pasture grass is abundant. Trembling is a common symptom of white snakeroot poisoning in cattle, while horses affected with the disease appear weak, have difficulty in swallowing, slobber excessively and breathe heavily. The symptoms in sheep resemble those in cattle. White snakeroot poisoning is another disease in which prevention is better than cure. Being able to recognize the white snakeroot weed, therefore, is an advantage in avoiding the disease. Circular No. 295 issued free by the agricultural college to interested persons, gives details of the disease, tells how to recognize the weed and outlines a plan for avoiding the poisoning which it causes.

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## Jersey Breeders To Have Privilege Of One-Day Test

According to word just received by M. H. Campbell, of the dairy department, College of Agriculture, the board of directors of the American Jersey Cattle club on June 1 voted to extend to the Jersey breeders the privilege of using the one-day test with preliminary milking instead of the two-day test with preliminary milking for register of merit work. This gives the breeder an opportunity of using either the one- or the two-day test. The advantage, of course, in the one-day test is the fact that it reduces the expense, inasmuch as the charge for a one-day test is $10, while that for a two-day test is $12. The action of the club will take effect July 1, 1926.

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Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director*.

## Aggressive Sanitation Policy Pays Monroe Hog Men

Monroe county farmers are setting the pace in swine sanitation in southern Illinois and profiting by it, E. T. Robbins, livestock extension specialist of the College of Agriculture, reports. Last year a dozen farmers in that county cooperated with Farm Adviser P. G. Ewald and the agricultural college in demonstrating the swine sanitation system on their farms and this year there are 17 farms on which the plan is being used. Farm Adviser Ewald was quick to see the value of the scheme and farmers of the county gave him fine cooperation in putting the plan to work, according to Robbins.

"There was a real need for the system in Monroe county. In 1924 Theodore Feurer, Red Bud, lost all of his little pigs from worms and necrotic infection. Last year with sanitation he raised an average of 8½ pigs to the litter. He is one of the farmers who is continuing the plan this year and his pigs are doing well.

"Last year William Rehling, Valmeyer, found that under the sanitation system his pigs were ready for market a month sooner than they had been when he raised them the old way. This year he has raised an average of eight pigs a litter from eight sows. Charles Franklin, Prairie du Rocher, lost half of his pigs from worms one year. Last year he tried sanitation and raised nearly all of his pig crop. When sold at the usual age they averaged 40 pounds heavier than usual.

"John Bitner, Valmeyer, raised a fine crop of spring pigs last year under the sanitation system and then went back to the old way with his fall pigs. Half of them died. Edward Rehling, Waterloo, is another swine sanitation fan. The scheme has made a success of his hog business. From April 1, 1925, to April 1, 1926, he sold $4,500 worth of hogs which he had raised."

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## Organization Helps Henry Dairymen Cut Milk Costs

Organization, coupled with the use of better methods, has paved the way for a reduced cost of milk on the farms of Henry county dairymen who are members of the dairy herd improvement association recently formed in that county by the extension service of the College of Agriculture. In a recent report to the college, where the work of these associations is supervised, R. C. Hayes, tester in the Henry county association, says that 24 of the 26 members found that the cost of feed required for 100 pounds of milk was less during the month for which the report was made than it was the previous month, the first one that the association was in operation.

Better rations, balanced so as to meet the needs of producing dairy cows, played an important part in lowering the cost of milk production on these farms, according to H. E. Jamison, assistant in dairy extension. At the suggestion of the tester and the agricultural college, several members made important changes in their rations and fed each cow according to her needs. In addition to cutting the feed cost for 100 pounds of milk, this improved feeding also gave 22 of the members greater returns for every dollar's worth of feed which they fed. A further help in lowering milk costs on these farms was the disposal of 11 cows which, after only one month's testing, proved to be liabilities instead of assets to the herds.

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## Paying Dairy Heifers Started Quick, Kept Growing

Start them quick and keep them growing, is the way to raise profitable dairy heifers, according to W. J. Fraser, dairy farming specialist at the College of Agriculture. This practice needs to be stressed at this time of the year, because heifers will soon be suffering from short pastures and lack of feed, he said. These short pastures and scanty feed will slow up the growth of the heifers and, in some cases, actually stunt them for life, thus cutting down their efficiency as mature cows. Just as it is important in economical milk production to have cows give a large flow of milk so that there may be a profit left above the expense of keep, so it is important to have heifers grow fast. Only in this way can they use the smallest percentage possible of their feed for maintenance and the largest amount possible for growth, which means economy in their raising, Fraser pointed out.

"It is the heifer's business to grow and the cow's business to produce milk. Every day a heifer is standing still or growing too slowly she is not only wasting much feed in simply maintaining her body, but also is wasting the interest on the money invested in her and the expense of her housing and care.

"Summer is the time when cheap growth can be put on heifers if they are furnished a constant supply of good pasture. The fact is, however, that more heifers make too slow gains or are stunted in the growing season of summer than in midwinter when they are fed harvested and stored feed. This is true because when they are turned on pasture in the spring they are left to shift for themselves all summer regardless of the supply of pasture.

"Pastures almost invariably get short during dry weather and heifers therefore should be watched to see that they are kept growing. This is doubly important because the flies and excessive heat of summer are just another drain on the heifer's body. Feeding heifers so that they are kept growing at all times not only brings them to maturity sooner, thus saving expense in raising, but also makes them better grown and more vigorous and consequently adds greatly to their earning power as mature cows."

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## Many Counties Planning Trips For Open House Week

At least 13 Illinois counties and one Indiana county will send delegations of farmers and their wives to the College of Agriculture during the annual open house week, June 21 to 26, according to word which already has been received from these counties. The Illinois counties include Madison, Greene, Peoria, Shelby, Macon, Vermilion, Iroquois, Moultrie, Edgar, Kendall, DuPage, Kane and Effingham. Lake is the Indiana county which will send a delegation. It will be in charge of L. E. Cutler, county agent. Otis Kercher, Vermilion county farm adviser, has sent word that the delegation of visitors from that county probably will include 900 people.

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Volume IX June 23, 1926 Number 25

## Field Meets To Show Merits Of Soil Improvement Plans

How corn yields in some sections of northern Illinois can be increased more than 21 bushels an acre, oats yields more than 24 bushels, wheat yields more than 21 bushels, red clover hay yields more than two tons and alfalfa hay yields almost two tons an acre will be pointed out to farmers who attend the field meetings which the College of Agriculture is planning to hold on five of its northern Illinois soil experiment fields during the week of June 28 to July 2. Increases as big as these have been obtained on different ones of the soil experiment fields through the use of recommended methods of soil improvement. The schedule for the meetings is: McNabb, June 28; Kewanee, June 29; Mt. Morris, June 30; Antioch, July 1, and Joliet, July 2. Representatives of the college agronomy department will speak at each of the meetings, which will start at 1:30 o'clock in the afternoon.

During the past 17 years the corn yields on the McNabb field have been maintained at an average of 73.3 bushels an acre by treating the soil with manure and rock phosphate. In contrast, land treated only with manure has produced an average of five bushels an acre less during the same time.

The Kewanee field is the one on which the corn yields have been boosted more than 21 bushels an acre. As an average for the past four years, the corn yields on this field are 51.3 bushels an acre for the untreated land, 64.7 bushels an acre on land treated with lime and sweet clover and 73.1 bushels an acre on land treated with lime, sweet clover and rock phosphate.

A bigger increase in the oats yield has been obtained on the Mt. Morris field than on any of the four other fields. Untreated land on this field has yielded an average of 44.5 bushels of oats an acre as an average for the past 13 years, while land treated with lime and sweet clover has made 69.3 bushels an acre as an average for the same time. This is an increase of 24.8 bushels an acre. An increase of 2¼ tons of red clover hay an acre also was obtained on this field one year through the use of lime and phosphate.

It is on the Antioch field that the wheat yields have been increased more than 21 bushels an acre. This field is one of the oldest in the state and as an average for four years land which was only limed has produced an average of only 13.3 bushels of wheat an acre in contrast to a yield of 35 bushels an acre on land which got both lime and bone meal.

The increase of almost two tons an acre in the alfalfa hay yield has been obtained on the Joliet field. As a five-year average untreated land made 1.2 tons an acre, while land treated with lime, sweet clover and rock phosphate has produced 3.12 tons an acre.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

## Big Fruit Crop Expected To Bring Swarm Of Tree Fakers

Prospects of a big fruit crop in Illinois, which promise to make this a good year for the state's fruit industry, also will bring a 100 per cent increase in the tree peddler menace with which farmers and fruit growers have to deal, it is predicted by R. S. Marsh, horticultural extension specialist of the College of Agriculture. Every state has tree peddlers who sell cull nursery stock for twice the price that honest nurserymen get for their first quality trees, shrubs and plants. This year, unfortunately, these peddlers will multiply and ply a more extensive business as a result of the promised prosperity in fruit growing circles, Marsh said. Already in a number of southern Illinois counties peddlers are engaged in this modern method of "gold brick" marketing.

"These peddlers truthfully claim that their stock comes from some widely known and reliable nursery, but in most cases it is the cull and worthless material, which the nursery discarded in order to keep its reputation as a dealer in good quality products.

"There are 455 certified nurseries in Illinois alone. Farmers and fruit growers will save themselves thousands of dollars if they will buy from such reliable and established firms. He further suggested that when convenient, those who are in the market for nursery goods inspect their purchase at the nursery. A written guarantee that varieties of stock which are bought are true to name also is important.

"Furthermore, don't be 'sold' nursery stock. Form your own opinions as to what to buy by consulting the recommended variety lists for the state. Farm advisers and the agricultural college also are equipped to give valuable suggestions on planting plans. It also should be remembered that it costs less to grow a good tree than it does a poor one.

"Names and business addresses of tree peddlers should be turned in to the farm bureau office and any irregularities among nursery dealers and agents reported to P. A. Glenn, chief plant inspector at Urbana."

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## C. & E. I. And College Plan Special Marketing Train

In a further effort to help southern Illinois peach growers get the best possible price for what now bids fair to be the largest peach crop the state has ever produced, the College of Agriculture will cooperate with the C. & E. I. railroad and other interested agencies in operating a special fruit and vegetable marketing train over the southern end of the Illinois division of the railroad during the week of July 12 to 16, according to an announcement by R. S. Marsh, horticultural extension specialist of the college. At each of the 17 points where the train stops, lectures, demonstrations and exhibits will be made on the grading, packing and loading of several different kinds of fruits and vegetables which are shipped in large quantities from that section of the state. Special emphasis is to be placed on peaches.

Stops will be made at St. Peter, Kinmundy and Salem, July 12; Cartter, Kell, Texico and Mt. Vernon, July 13; Ina, Goreville, Buncombe and Cypress, July 14; Ullin, Olive Branch, Tamms and Joppa, July 15, and Boaz and Karnak, July 16.

## Says Full Feeding Of Spring Pigs Should Pay This Season

Conditions are right this year for the full feeding of spring pigs and indications now are that early-fattened pigs will net their owners more money than hogs that are held back with a light summer feed, says W. E. Carroll, chief of swine husbandry at the College of Agriculture. Light summer feeding is only justified when old corn is much higher in price than corn of the new crop promises to be and when an early fall run of hogs on the market seems to be much in evidence. Neither of these conditions exists this spring.

"The ration to use for pigs that are being full fed on good pasture will vary somewhat with conditions. In general, of course, corn will be the principal feed. Oats are rather too bulky to be used very extensively in the rations of fattening hogs. Corn should be full fed, the best method probably being by means of the self-feeder.

"The most difficult question to settle is whether or not to feed a protein supplement in addition to pasture. Experimental work which has been done on this question indicates that the addition of about one-fourth of a pound of tankage a head daily to the ration increases the daily gain from .88 of a pound to 1.25 pounds a head. This was with pigs which weighed an average of 49 pounds at the beginning of the tests. The pasture in these trials was rape. One hundred pounds of tankage fed under these conditions saved 415 pounds of corn. Figuring corn at 56 cents a bushel, the tankage was worth $83 a ton. If tankage is self-fed on pasture, the pigs should be watched closely to see that they do not eat more of it than they need. Possibly one-fourth of a pound a head daily will be enough. Even less than this will be enough as the hogs reach market weight.

"With prices as they are, money usually can be saved on the supplement by mixing two parts of tankage and one part linseed oil meal or possibly even equal parts of the two. These mixtures seem to produce as rapid gains as tankage alone and should be somewhat cheaper. They usually may be self-fed free choice with corn on good pasture.

"Farms which have skimmilk available will need no other supplement for hogs that are on pasture. Middlings, however, are usually not as satisfactory as tankage or the mixture of tankage and linseed oil meal."

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## Slovenly Bundles Add To The Loss Of Grain At Harvest

Grain losses at harvest time are likely to be heavy unless farmers use every effort to make the best possible bundles, according to I. P. Blauser, of the farm mechanics department, College of Agriculture. Tests made last year by the college in a number of fields showed that there was a loss of about 3 per cent of the grain around shocks. Good bundles would have prevented a considerable part of this loss.

Very short grain or down grain leaning toward the elevator probably gives the most trouble at harvest time. To meet these conditions the following steps are recommended by Blauser: (1) Set the platform level or tilt the front up a little if the other conditions will permit; (2) for extreme cases, crinkle the strap iron grain retarder furnished with the binder and place it on the platform so that the heads will fall on it and be retarded, or use a knotted rope, and (3) push the binder head as far forward as possible and then bring the butter back far enough to get the grain under the breast plate.

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Volume IX June 30, 1926 Number 26



## Plant Breeders Of College Make Corn "To Order"

Corn that is "made to order" for particular uses is one of the interesting products of the many experiments which are under way on the farm of the College of Agriculture. It is well known that corn would be a better feed for man and beast if it contained more protein. On the other hand, the manufacturer would like to have a corn that contained less protein but more carbohydrates and more oil. Just 30 years ago, therefore, plant breeders of the college set out to see just how much the composition of the corn grain could be modified by a process of breeding known as selection. Later the investigation was extended to include certain physical characteristics of the corn plant, such as height of ear, angle of declination of ear and the number of ears a stalk. Striking alterations have been made in all these characters.

When the investigation started 30 years ago, the protein content of grain from the original strain stood at 10.92 per cent and the oil content at 4.7 per cent. Since then two strains of high and low protein content and two others of high and low oil content have been developed. In the last crop, the grain from the high-protein strain averaged 18.3 per cent protein and that from the low-protein strain 7.43 per cent protein. The grain from the high-oil strain averaged 10.21 per cent oil and that from the low-oil strain 1.43 per cent. In other words, selection since 1896 has increased the protein content of the high-protein strain 7.38 per cent, decreased the protein content of the low-protein strain 3.49 per cent, increased the oil content of the high-oil strain 5.51 per cent and decreased the oil content of the low-oil strain 3.27 per cent.

As for the height on the stalk at which the ear is borne, 23 years of selection have increased this from 49.6 inches to 99.8 inches in the high strain and decreased it to 9.7 inches in the low strain. Variable results have been obtained in breeding for two ears on a stalk. At the beginning, the percentage of two-eared stalks was 6.7. This has been increased to as high as 85 per cent. In the last crop, 60 per cent of the stalks had two or more ears.

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## Marketing Train Will Be First Of Kind In 12 Years

The only train of its kind to be operated in Illinois in the last 12 years, is the distinction attached to the special fruit and vegetable marketing train which will be run over the southern end of the Illinois division of the C. & E. I. railroad during the week of July 12 to 16 in cooperation with the horticultural department of the College of Agriculture. It was in 1914 that a railroad system and the horticultural department of the college last cooperated in running a special train. A wealth of fresh material therefore is available for making the coming train an outstanding one, according to those in charge of it. Exhibits, lectures and moving pictures all will be used in showing farmers and fruit growers along the route how to grade, pack and load apples, peaches and tomatoes. Stops will be made at St. Peter, Kinmundy, and Salem, July 12; at Cartter, Kell, Texico and Mt. Vernon, July 13; at Ina, Goreville, Buncombe and Cypress, July 14; at Ullin, Olive Branch, Tamms and Joppa July 15, and at Boaz and Karnak, July 16.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

## Extra Care In Handling Transparents Should Pay

Apples of the Transparent variety will be of unusually fine quality in Illinois this year and growers should realize a substantial profit on their shipments if they use extreme care in handling the fruit, R. S. Marsh, horticulture extension specialist of the College of Agriculture, says. The high quality will be the result of a thin set of fruit and the fact that a large proportion of the crop will be harvested from young trees. The crop will begin to move from southern Illinois during the early part of July.

Over production of Transparent apples is not far distant and the grower who now takes pride in marketing only a high quality, honest and uniform pack will have such a good reputation among buyers that over production will not greatly affect his profits.

The old saying of, "Handle apples as you would hens' eggs", applies especially to apples of the Transparent variety. Apples of this variety have a firm, crisp, tender flesh which not only bruises easily but which also shows the bruises because of the color of the variety.

"Padded picking baskets and picking bags with large openings and so shortened as to hold half their usual capacity can be used in harvesting the crop. A picking basket which has a concave side to fit the trunk of the picker's body and that can be carried waist high by the use of shoulder straps is especially desirable for harvesting Transparent apples.

"Care also must be used in transferring the apples from the picker container to the crates, grading table and bushel baskets.

"After the apples are picked they should go at once to the packing shed so that shriveling, over ripening and decay, which take place at warm temperatures, can be retarded. Of course, the sooner the harvested crop can reach the refrigerator car the better.

"From three to six pickings ought to be made in order to get a high percentage of the fruit into the No. 1 U. S. grade. At each picking the largest and most mature fruits should be harvested."

- M -

## Fly Evil Is Lessened If Cows Are Comfortable

Giving dairy cows access to cool, darkened barns during the heat of the day will go a long way toward taking the "sting" out of the summer fly evil, thereby preventing a drop both in milk yields and profits, C. S. Rhode, dairy extension specialist at the College of Agriculture, says. Windows can be darkened by nailing building paper over them. Gunny sacks hung in the doorway will brush the flies from the cows' backs as they enter the barn.

Fly repellents may be effective for a short time in lessening the annoyance caused by flies. A home-made spray, or fly repellent, recommended by Rhode can be made in this way: Dissolve $\frac{1}{3}$ pound of soap in 1 gallon of soft water heated to the boiling point and with this combine 2 gallons of kerosene. This should be churned vigorously and then 6 gallons of water added.

## Spotted Chinch Bug Damage Expected In Big Area

Spotted damage by the chinch bug, one of the serious pests of the corn crop, this year can be expected in that section of Illinois which is bounded on the north by Iroquois, Livingston and McLean counties and on the south by Randolph, Perry and Washington counties, according to a warning issued by the Illinois Natural History Survey and the College of Agriculture.

The bugs hatch out in fields of wheat and oats and then when the small grains are harvested the insects move to adjoining corn fields. Farmers who have wheat fields in which the bugs are thicker than 15 to a single foot of drill row should be ready to fight them at wheat harvest time, the warning said. The best method of controlling and killing the bugs is by the use of a combined creosote and calcium cyanide barrier.

Briefly, this method of control consists of placing small quantities of calcium cyanide in strips at right angles to a creosote barrier surrounding the wheat field. These strips of calcium cyanide should be spaced about two rods apart and should join the barrier on the side next the wheat field. The details of the method are given in Bulletin No. 249 of the college.

The chinch bug has been getting a part of the Illinois corn crop every year for the last 16 years in certain counties of the state, according to Flint. Some years the damage has extended over 25 or 30 counties and in other years the insect has been of importance only in parts of two or three counties.

This year, in the area designated, there will be spotted fields here and there, a corner of a county, part of a township or even only one or two fields in a school district where damage may occur, while over large areas, no injury from the bugs will be noticed this season.

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## Clover Bees Make This Good Clover Seed Year

There have been plenty of "clover bees" this year and first crop red clover which had a good bloom therefore will in most cases produce a good yield of seed, according to W. P. Flint, chief entomologist of the Illinois Natural History Survey. He suggests that it will pay farmers to investigate the set of seed in their fields, as clover seed has been scarce and high in Illinois during the past two or three years. Illinois has not been producing nearly enough to meet the demand in this state. As for the second cutting of red clover, no definite predictions as to the kind of seed crop which may be expected can be made at this early date. Unfavorable weather and seed destroying insects may greatly reduce the yield of seed in this cutting.

In order for the first crop of red clover to produce seed, each blossom must be fertilized by some of the insects that get nectar from the clover. The clover bee is the most important pollinator for the first crop. This bee is a little larger than the honey bee and makes its nest in the ground around clover fields. These bees have been abundant enough this year to visit and fertilize most of the heads of the first crop of clover. Whether or not it will pay to thresh the first cutting of red clover this year will depend on the number of heads which have bloomed in the field.

EX

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service



Volume IX July 7, 1926 Number 27



## Urges Caution In Further Expansion of Hog Raising

Predictions which are being made in some quarters that the present prosperity in the hog business will continue for as long as two years to come are doubted by W. E. Carroll, chief of swine husbandry at the College of Agriculture. There is evidence on all sides that hog raisers intend to expand their pork making operations as fast as possible. Despite the present strength of the hog business it is hardly probable that it will continue to support present profits and greatly increased numbers of animals at the same time, Carroll pointed out. He suggests that farmers use caution in speeding up their hog raising business.

When predictions are being made as to the future of the hog business, one guess may be as good as another, Carroll admitted. It also is impossible to prove or disprove the prediction that present prosperity in the hog business will continue for as long as two years to come. On the other hand, if this prediction is meant to imply that the corn-hog ratio will continue about as it is for the next two years, present indications do not bear out this view, he said.

Two factors will combine to change the present corn-hog ratio. For one thing, it is hardly conceivable that two more corn crops like the one of last year will follow on the heels of one another. In the second place it is totally outside the experiences of the past to feel that present high profits can continue without acting as an inducement to many others to enter the field.

"The present trend of most farm and hog sales is proof that there is considerable of a scramble to get into the hog business. Last fall and winter the proportion of barrows on the killing market was high enough to indicate a definite attempt to increase breeding operations and at the present time the number of sows bred for fall litters is about 34 per cent in excess of last year. Only one thing - greatly increased hog population - can come as a result of these things.

"Evidently hog raisers intend to expand their pork making operations as fast as possible. If this continues, two years are not needed to increase supplies materially. The only thing that prevented the first of the increase from being with us now was the bad farrowing weather of the past spring and the consequent heavy pig losses."

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## Many Failures With Roses Caused By Insect Attacks

Roses, which probably are the most beautiful of all ornamental plants, are attacked by more than a dozen species of insects and many of the failures to grow roses about the home can be laid directly to the ravages of these pests, according to C. C. Compton, assistant entomologist of the Illinois Natural History Survey.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

## Alfalfa Tests Protect Farmers Against Poor Strains

In tests designed to protect farmers against unadapted strains of native and imported alfalfa, crop authorities of the College of Agriculture, University of Illinois have found that Argentine alfalfa, one of the common types in the 4,782,500 pounds of alfalfa seed imported into this country last year, has averaged about 1½ tons of hay an acre less than three recommended native varieties. As an average for the past two years, Argentine alfalfa has made 2.67 tons of hay an acre, whereas Grimm, Cossack and South Dakota No. 12 common, the three native strains, have averaged 4.26 tons, 4.14 tons and 4.54 tons an acre, respectively. Close to a quarter million acres of alfalfa are now grown annually in Illinois and reliable facts on varieties and planting dates therefore are of interest and value to farmers.

As in former years, the hardier strains of alfalfa showed their superiority this past spring. The tests also brought out that hardiness alone is not enough to insure success in alfalfa growing. Cultural practice, especially the proper time of cutting, proved highly important. In trials on the date of cutting, for instance, alfalfa which was cut in the full bloom stage was found to be entirely killed out on all plots this spring. The same variety, South Dakota No. 12, came through the winter in good shape when it was cut in the one-tenth bloom stage.

Grimm and Cossack, both variegated alfalfas, showed practically no winter killing. Kansas-, Colorado- and Idaho-grown common alfalfa stood intermediate in point of winter killing, while the already poor stand of Argentine alfalfa became even thinner. In tests which are being made at DeKalb under northern Illinois conditions, variegated alfalfa is still giving the best results. Spring seeded plots on the DeKalb field are producing considerably better than late summer or fall seeded plots. The difference now averages about one-fifth of a ton of hay an acre in favor of the spring seeded plots.

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## Quality Peaches Expected As Result Of Thinning

Excellent size and fine quality of fruit are now promised in the record peach crop which Illinois will harvest this year, according to J. W. Lloyd, in charge of fruit and vegetable marketing investigations at the College of Agriculture. As a result of a campaign conducted for this purpose, owners of most of the peach orchards in Illinois have carefully thinned the fruits on their trees in order to insure larger size and better color in the remaining fruits. This practice, combined with proper spraying and cultivation, should make the forthcoming peach crop a high grade one, Lloyd said.

In Marion county, which probably has more peaches than any other county of the state, nearly all commercial peach growers have completed the thinning of their peaches, according to a report of Farm Adviser, F. J. Blackburn. Similar reports have been received from other counties of the state. Peach trees in Illinois this year set a very heavy crop and it was necessary to remove from one-half to three-fourths of the peaches from some of the trees in order to give the remaining fruits enough space to develop properly.

In the peach thinning campaign, demonstrations of the proper methods were held at a number of points in Marion and other counties by farm advisers, in cooperation with R. S. Marsh, horticulture extension specialist of the college, and H. W. Day, recently appointed production manager for the Illinois Fruit Growers' Exchange.

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## New Figures Announced On Costs Of Farm Products

Figures just released by the farm organization and management department of the College of Agriculture on the 1925 cost of producing farm products on 16 Champaign and Piatt county farms show that it took 57 cents to grow a bushel of corn, $1.12 to produce a bushel of wheat and $10.69 to produce 100 pounds of pork. As for other crops, the bill for a bushel of oats averaged 65 cents on 15 of the 16 farms; soybeans cost an average of $1.25 a bushel on four farms, while alfalfa hay was produced at a cost of $10.51 a ton, mixed hay at $15.14 a ton, soybean hay at $21.22, clover hay at $32.11 and timothy at $41.32. The figures are said to be typical for east central Illinois.

When feed and labor costs were charged up against them, all cattle kept on the 16 farms showed an average loss of $7.78 a head for mature animals. The average cost of keeping a milk cow on 13 of the 16 farms was $102.81 a year, while poultry brought an average net profit of $5.99 a farm.

Nine of the 16 farms had tractors, the range in costs for a year being from $196.86 on one farm where the tractor was used but 73 hours to $724.83 on another farm on which tractors were used 944.5 hours. Horses showed an average net cost of upkeep of $115.81, while the average cost for an hour of horse labor was 14.6 cents. The annual building expense for each acre ranged from $1.27 on one farm to $7.26 on another; the cost of fencing varied from 14 cents an acre on one farm to $1.52 on another, while the annual cost of crop machinery and tools ranged from 97 cents an acre on one farm to $2.37 an acre on another.

That there is a big opportunity for more efficiency on many farms is shown by the wide differences in the cost of the same product on different farms, the report points out. Corn costs, for instance, varied from 45 cents to 81 cents a bushel, the range in the cost or producing a bushel of wheat was from 93 cents to $2.27 a bushel, while oats costs showed a range of from 47 cents to 79 cents. The range in the cost of producing 100 pounds of pork was from $7.83 to $22.34.

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## Use Of Big Teams Helps Farmers Meet Labor Scarcity

Use of larger teams of horses and mules is one of the ways in which Illinois farmers are meeting the farm labor shortage, according to E. T. Robbins, livestock extension specialist of the College of Agriculture. This spring it was common throughout Douglas, Champaign, McLean and Tazewell counties and other sections of the state to see 5-, 6- and 7-horse teams to plows, disks and harrows. Some 8-horse teams were used on 3-bottom gang plows and tandem disks. Since hired help has become scarce, farmers have learned that they can drive as many horses together as the size of the implement requires for speedy work. Most quarter sections in Illinois have six to eight horses, and when one man drives all of these to one plow he can do all of his season's plowing in a few days, Robbins said.

Some ingenious schemes for working five to eight horses together will be shown at county fairs and field demonstrations this summer. Illinois farmers are realizing that they can drive this many horses if farmers in Montana, for instance, can drive 12 and 16 and even 30 horses in one team.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX July 14, 1926 Number 28

## U. of I. Experiments Improve World-Famous Sweet Corn

Illinois, which already is famous in the world markets for the fine quality of its canned sweet corn, should strengthen its reputation as a result of investigations which have been conducted by the experiment station of the College of Agriculture during the past four years for the purpose of developing improved strains of sweet corn. Several improved strains of the Country Gentleman and Narrow Grain Evergreen varieties which have been developed in these experiments have been turned over to the Illinois Canners' Association for final trial and multiplication. The plan is to have these strains in the hands of farmers in sufficient quantities within two years to plant their acreage.

The sweet corn breeding experiments were started with the idea of improving an already superior product by breeding better strains which would eliminate defects now present in the sweet corn canned in Illinois. The aim has been to select strains which not only would yield higher but which also would pack better quality canned corn, mature more uniformly, mature earlier in some cases and later in others and be more uniform in size and type.

Considerable progress is still expected in the experiments, as they are the first of their kind in a new field and the work is extremely intricate. The work has been limited to the Country Gentleman and Narrow Grain Evergreen varieties because these are the two which seem best suited to Illinois conditions. Two methods of breeding have been followed. These are ear-row selection and pure-line breeding. The new strains which are now being multiplied are the result of ear-row selection. The pure-line method requires years of effort before it produces tangible results. At the present time most of the pure lines which have been isolated have been crossed with one another. The progenies from these crosses are now being studied and it is believed that a number of highly improved strains will eventually result.

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## New Insect Not Likely To Become Serious In Illinois

Entomologists of the Illinois Natural History Survey have identified the new insect that is damaging corn around Benton as the rough-headed corn stalk beetle, an insect which is common in the southern states but which has just been reported for the first time in Illinois. No very extensive damage has been done by the insect in its first appearance in this state and it is not likely that it will become serious in Illinois corn fields, as it has been serious only in the southern states up to the present time, according to W. P. Flint, chief entomologist. The pest also is sometimes known as the southern sugar cane beetle. The best way to prevent damage by the beetle is to avoid planting corn the first year on old low pasture lands or waste lands that have just been broken up. A circular published by the federal department of agriculture gives a full description of the insect and its habits.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director*.

## Cheap Corn May Lead To Poor Methods In Pig Feeding

Cheap corn, which is available to hog feeders now, is a blessing in some respects but at the same time it leads to poor feeding methods, R. A. Smith, of the swine division, College of Agriculture, points out. When corn is priced low there is a tendency to feed so much of it that the ration of the pigs is not properly balanced. This year, with feed cheap and hogs high priced, spring pigs are being fed to the limit and it therefore is doubly important that they get properly balanced rations if they are to make the most economical gains, he said.

Lack of protein is the chief cause of unbalanced rations when excessive amounts of corn are fed. Legume pasture will go a long way toward solving this problem. Alfalfa, the premier hog pasture, should be used whenever possible. Although rape furnishes a much shorter pasture season than alfalfa, it is about as good as alfalfa while it lasts. Clovers are next in line as hog pastures. Timothy and bluegrass, although much inferior to the legumes or rape, are much superior to dry lot feeding.

Feeding experiments, as well as general farm practice, have repeatedly demonstrated that a protein-rich feed should be fed in addition to corn even when pigs are being full fed on pasture. Under average farm conditions this can best be done by using tankage, either self-fed free choice or hand fed at the rate of about one-fourth pound daily for each pig. When either skimmilk or buttermilk is available the tankage can be omitted and excellent results obtained by feeding milk at the rate of one pound a day for each pound of grain fed.

Soybeans are sometimes used as a source of protein, but if they are fed in very large quantities they cause soft pork, which is being discriminated against by packers. Although the proportion of the ration that can be made up of soybeans has not as yet been determined, it is best to use them along with tankage or other protein-rich feeds rather than to use them alone with corn.

No mineral supplements are needed with rations containing tankage, skimmilk or legume pasture.

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## Suggests That Spray Residues Be Wiped Off Of Apples

Although spots of spray residues on apples are absolutely harmless to consumers of the apples, it will pay growers to take the time and trouble this year to wipe or brush off such spots, according to R. S. Marsh, horticulture extension specialist of the College of Agriculture.

Buyers of fruit are becoming more suspicious of apples containing spray residues and are likely to discriminate against or even reject all apples showing excessive amounts. It is especially important to see that no spray residues remain on Duchess apples when they are ready to ship, since this variety is one of those that is heavily sprayed with bordeaux. Removing the spray residue from apples not only does away with appearances of evil and all causes of suspicion but also adds to the attractiveness of the apples.

## Peach Grading Important With Record Crop In Sight

Illinois peaches will have to be carefully graded if they sell well this year, J. W. Lloyd, in charge of fruit and vegetable marketing investigations at the College of Agriculture, points out in a new circular from the college entitled, "Directions for Grading and Packing Illinois Peaches". The state will have a record crop this year and when supplies are abundant the market becomes discriminating and is likely to ignore all peaches not meeting its fancy. Uniformly large peaches, free from blemishes, may sell very well, while small or slightly blemished peaches go begging on the same market, Lloyd said.

"Not all peaches suitable for shipment are uniform enough in size, color and freedom from blemishes to sell to the best advantage if packed together. Certain classes of trade call for extra fine table peaches. Such peaches command a premium over the less highly finished product, although the latter may be well suited to canning and other uses. The more nearly uniform the peaches in a given lot, the better they will sell.

"Grading according to a definite, recognized standard greatly facilitates the sale of peaches through wholesale channels. Growers will find it to their advantage to pack according to the U. S. peach grades which are well known in the trade and have been adopted as official for Illinois.

"The bushel basket is the standard package for Illinois peaches. Three methods of packing this basket are in use. Of these three the jumble pack is the poorest and the ring pack the best. However, the ring-face pack is nearly as good as the ring pack method and is much more rapid. Extreme care should be used in handling the peaches all the way from the trees to the refrigerator cars in order to avoid bruising or otherwise injuring them. When the peach crop is large, only the better grades should be sent to the city markets."

The new circular on grading and packing peaches is No. 310 and may be obtained free by writing the college.

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## Club Members To Meet In Judging Contest August 16

The annual livestock and dairy cattle judging contest which will be held at the College of Agriculture on August 16 is the next event of state-wide importance for junior agricultural club members of Illinois. Last year, the first one in which the contest was held at the college, 19 livestock and four dairy cattle judging teams from various counties of the state competed, but the entry list this year is expected to be larger. Entries for the contest should be made before August 9, club officials have announced.

In addition to a shield, the winning livestock team will get $50 toward the expenses of a trip to the International Livestock Exposition. Each member of the winning team also will receive a gold medal and there will be prizes of $10 each for the second, third, fourth and fifth highest scoring teams. In the dairy cattle judging contest, the winning team will receive a shield, and $50 toward the expenses of a trip to the National Dairy Show, while each member of the team will get a gold medal. There will be prizes of $10 each for the second and third highest scoring teams in this contest.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX July 21, 1926 Number 29

## Early Marketing Studies of U. of I. Given Wide Scope

Marketing investigations started a score of years ago by the experiment station of the College of Agriculture have been expanded with the aid of increased funds from the recently enacted Purnell bill to the point where studies are now being made of the marketing problems of practically all the principal farm products of the state. Seventeen distinct investigations of marketing problems and related questions are under way.

Chief among the studies are those in livestock marketing. It was in this field that H. W. Mumford, the present dean and director of the college, did pioneer work 20 years ago. Just now a survey is being made of present livestock marketing methods and practices in Illinois. This is expected to be completed within a year, at which time the scope of the investigations will be extended.

In the field of fruit and vegetable marketing, specialists of the station are making a study of the losses due to spoilage of fruits and vegetables during the marketing process; the marketing of Calhoun county apples, and the marketing of Illinois peaches. The apple marketing study is especially significant, in view of the fact that Calhoun county produces more apples than any other county in the state and yet has some unique problems when it comes to the marketing question. Added importance attaches to the peach marketing study just now, since the 1926 crop promises to be a record one.

Marketing specialists in the agronomy department are confining their attentions to classes of Illinois wheat, the shrinkage of grain in storage and direct shipments of grain from producing to consuming sections. The marketing of red top, soybeans and wheat, and the marketing of different crop seeds are coming in for attention at the hands of specialists in the agricultural economics section. Other investigations being conducted by this section deal with terminal grain markets, grain elevators, prices of farm products and land tenure and transfer.

Cream marketing and the marketing of milk in the St. Louis dairy district are being studied by the dairy department.

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## Raking Up Loose Heads Prevents Heavy Loss Of Grain

As much as 1¼ bushels of wheat an acre may be left behind in the field at threshing time unless special care is taken to gather up the heads which shake off between the time the bundle leaves the bundle carrier on the binder and the time the shocks are gathered up during threshing or stacking, according to A. L. Young, of the farm mechanics department, College of Agriculture. He suggests that one way to avoid this waste is to go over the shock rows with a dump rake after the shocks have been gathered up. It is hard at best to get pitchers to gather up the loose heads. It therefore would be economical not to attempt to get many of the loose heads with the pitch fork but rather to gather them up later with a dump rake, he pointed out.

Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

## Chickens Bring Profits of $43,778 to 234 Flock Owners

Total profits of $43,778.01 were realized last year on their farm poultry flocks by 234 farms in 39 counties of the state who cooperated with the extension service of the College of Agriculture in keeping records on their chickens, according to a summary just prepared by John Vandervort, poultry extension specialist. The total labor income which the farmers realized from their poultry amounted to $66,538.54. Cash receipts from eggs alone amounted to $86,154.79, while the sale of market poultry brought in cash receipts totalling $42,778.78. The total cash receipts from all sources amounted to $148,598.97. The bill for chicken feed on the 234 farms amounted to $73,276.20. There were 39,126 chickens kept on the 234 record farms, while 4,164,568 eggs were laid. This was 347,047 dozen eggs, 11,568 cases or a little more than 28 carloads of eggs of 400 cases each.

The object of the flock record project, under which the records were kept, is to point out success-promoting practices in farm poultry raising. In this connection the summary of the records brings out some striking contrasts between the best one-third of the records and the poorest one-third. In the case of egg production per hen, for instance, the average for that third of the records which were the best was 118 eggs a hen, while the average for the poorest one-third was 100 eggs a hen, or 1½ dozens a year less. With eggs at 30 cents a dozen, the average income from the hens in the poorest one-third of the records therefore would average 45 cents less a year than that from the hens in the best one-third of the records, Vandervort pointed out.

Farmers who turned in the best one-third of the records culled out 53 per cent of their hens while those who turned in the poorest records culled only 40 per cent. Only 11 per cent of the hens died on the farmsmaking up the best one-third, while 14 per cent died on the poorest one-third. Perhaps the most striking difference between the best third and the poorest third of the records was in point of profits from each hen. Farms from which the best records came realized an average profit of $2.45 on each hen, while that third of the farms which had the poorest records realized an average profit of only 6/10 of one cent on each hen. The best one-third showed meat receipts of $1.68 a hen in contrast to 88 cents from the poorest one-third, while the feed cost per hen on the best farm records was $2.01 as compared to $1.99 on the poorest third. In other words, it cost the farmers who had the poorest records about the same for feed as it did those who had the best records, Vandervort said. Farmers who turned in that third of the records which were best realized an average of $1.41 return for each hour of their labor, while those who turned in the poorest records got only 25 cents for each hour of their labor.

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## Peoria Cow Bids For First Membership in Select Club

Although her allotted time is only half gone, a grade Holstein cow in the herd of William Sipp, Peoria, lacks only 15.4 pounds of butterfat of winning the first 1926 membership in the Illinois 500 Pound Butterfat Cow club, according to a summary just prepared by C. S. Rhode, dairy extension specialist of the College of Agriculture. For the first half of the year, the Peoria county cow has a record of 484.6 pounds of butterfat and 13,699 pounds of milk. Seventy-four of the 500 Illinois dairy cows which have been nominated for membership in the club already have produced 300 or more pounds of butterfat and therefore are practically sure of winning the gold medals which will be awarded to all cows that produce 500 pounds or more of butterfat by December 31. The 74 cows are owned by 47 dairymen in 15 counties. This is the second year that the agricultural college has sponsored the 500 Pound Butterfat Cow club. The object of it is to show farmers and dairymen that good breeding, proper feeding and careful management pave the way for economical milk and butterfat yields.

## Inefficient Threshing Machine Operation Found Costly

Loss of more than 2,720,000 bushels of small grain annually is the bill which Illinois farmers pay for inefficient threshing machine operation, while threshermen themselves are out something like $100,000 a year for this same inefficient operation, it was discovered by the College of Agriculture in investigations reported in a new circular, "Reducing Grain Losses in Threshing". Careful tests made in representative sections of Illinois showed that the average efficiency of threshing machines was 98.64 per cent. In some cases the losses in threshing ran as high as 4.05 per cent for wheat and 10.28 for oats.

The threshing machine operator who understands thoroughly the functions of the different parts of the machine and watches them carefully while the machine is operating can get 99.5 per cent of the grain or even more, according to I. P. Blauser, author of the circular. A loss of as much as 1 per cent of the grain is only average operation, while a loss of 1 to 2 per cent is poor operation and a loss of 2 per cent or more very poor operation, he said.

Even a small average loss for the state as a whole runs into big figures, in view of the fact that 30 per cent of all the improved land in the state is devoted to small grains and more than 200,000,000 bushels are produced annually, Blauser pointed out.

"It is reasonable to believe that losses of grain in threshing will increase rather than decrease, because of the rapid increase in the number of small threshing machines that are being driven by tractors. Tests have shown that the small machines operate just as efficiently as the large ones under similar conditions. The operator of the small machine, however, very often is inexperienced. Also the machine is crowded more easily.

"A threshing machine has a great many moving parts, but there is nothing mysterious about the functions and operations of these parts, considered separately. Some study, however, is required if the operator is to keep each of the different units properly adjusted and working in harmony with the other parts of the machine. Threshing machine manufacturers have designed and built their machines to make them as efficient as possible and to give a minimum of trouble. Each make of thresher, however, has characteristics of its own that are explained by specific instructions. These instructions should be read by the experienced operator as well as the inexperienced one and then followed closely."

- M -

## Making Chicks Rustle Own Feed Will Stunt Pullets

Growing chicks that have to rustle for themselves at this time of the year will not make early maturing, well grown pullets, poultry specialists at the College of Agriculture point out. A balanced ration that supplies all of the essentials for good growth should be kept before the chicks at all times.

Larger hoppers which allow many chicks to eat at one time may be helpful in preventing stunted chickens. When an all-mash ration is being used, hoppers of this kind are especially essential. In order to make sure that all chicks get the proper amount of feed it is a good plan to give a liberal feeding of cracked corn or corn and wheat in the morning and another late in the evening. Ordinarily, the growing mash can be kept before the pullets up to the time they are ready to lay.

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX July 28, 1926 Number 30


## Illini, New High Yielding Soybean, Being Tested Over State

Illini, a new high yielding soybean selected and developed from the A. K. variety by plant breeders of the College of Agriculture, and a number of other promising strains and varieties of soybeans are figuring in extensive tests which the college is making this summer at different points in the state. One object of the tests is to determine in what sections of the state the new soybean is adapted and in what sections it is not adapted, while a second object of the investigations is to study the performance of the same and different varieties of soybeans on different soils and under different conditions.

The soybean is coming to be of more and more importance not only in the agriculture of Illinois but also in the agriculture of the entire country. New and reliable facts about the crop, therefore, are being eagerly sought by farmers. In all, 12 cooperative tests of soybeans are being made over the state by the college. These are located in Will, Woodford, Macoupin, Christian, Macon, Montgomery, Richland, Wabash, Crawford and Effingham counties. In addition, plantings have been made on the DeKalb, Oquawka, Alhambra, Toledo, Raleigh and Odin experiment fields.



Despite the fact that last fall was a most unfavorable one for harvesting soybeans, the Illini strain made a good record on the college farm and finished the season with a higher yield of seed than any of the other varieties and strains which were used in the variety trials.

Other varieties in addition to Illini which are being tested out under northern Illinois conditions this summer are Pinpu, Dunfield, Manchu (Morse), Manchu (early) and Peking. In central Illinois the varieties and strains being tried out are Illini, Dunfield, Manchu (Morse), Morse, Wilson V and Peking, while the varieties being tested in southern Illinois include Illini, Manchu, Haberlandt, Morse, Wilson V and Virginia. All the major soil types in the state are represented in these tests.

- M -

## New Circular Covers Wide Range Of Farm Machinery Topics

With about $222,619,605 invested in machinery on Illinois farms, heavy losses frequently result from the improper care and use of different implements and machines, R. I. Shawl, assistant chief in farm mechanics at the College of Agriculture, points out in a new circular, "Farm Machinery - Its Purchase, Care, Operation and Adjustment." The average farmer has about $939 invested in machinery, according to Shawl.

The coming of the tractor and changing implement prices were largely responsible for an increase of more than 202 percent between 1910 and 1920 in the amount invested in farm machinery, but it is doubtful whether there has been much of an increase since that time, according to Shawl.

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Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. MUMFORD, *Director*.

## Cover Crops Are Of Major Importance In Good Orcharding

It is not too early for Illinois fruit growers to be making plans for seeding orchard cover crops, R. S. Marsh, horticulture extension specialist of the College of Agriculture, says. Such crops are of major importance in good orcharding because they help to prevent winter injury by reducing the water supply in the soil so that the wood of the trees tends to harden earlier, they help to prevent erosion and soil washing during fall rains and they protect the soil from extremes in temperature, thereby preventing deep freezing of the soil. This protects against winter injury of the root and crown.

"While cover crops can be used to keep up the humus content of the soil and thereby increase the moisture holding capacity of the soil, it should not be overlooked that the size of the fruit may be reduced if there is an excessive growth of the cover crop present while the fruit is maturing.

"Oats, soybeans, cow peas, millet and buckwheat are among the best cover crops for the orchard because they are killed by the first freeze of the fall and thus return plant food to the soil in the shortest period of time. Furthermore, if spring cultivation is delayed on account of wet weather, these crops do not compete with the trees for moisture or soil nutrients as do other cover crops which live over the winter.

"Vetch, crimson clover and rye are sometimes recommended for orchard use. These crops live over the winter. Rye too often makes an excessive growth before it is plowed down in the spring. If rye is used, therefore, it should be plowed or disked under while it is still succulent and tender and before it begins to compete with the trees for moisture.

"Sweet clover is gaining favor with orchardists because it is a soil builder and because it does well in many places where other crops cannot be successfully grown. If sweet clover is used as an orchard cover crop the land should first be limed if it is acid. In young orchards, sweet clover can be planted in the spring except in localities where buffalo tree hopper is bad."

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## Many Learn Improved Methods By Visiting Special Train

A total of 4,184 farmers, fruit growers and other interested persons passed through the special fruit and vegetable marketing train which recently was operated by the C. & E. I. railroad over the southern end of its Illinois division in cooperation with the extension service of the College of Agriculture. Joppa turned out the biggest crowd for the train, 537 having passed through the coaches at that stop. At Tamms the attendance was 427 and at Cypress 405. Attendance at the other stops along the route of the train was: St. Peter 175, Kinmundy 200, Salem 225, Cartter 75, Kell 301, Texico 214, Mt. Vernon 200, Ina 240, Goreville 225, Buncombe 375, Ullin 80, Olive Branch 211, Boaz 80 and Karnak 214.

R. S. Marsh, horticulture extension specialist, took up approved methods of picking fruit and getting it to the packing shed. He further explained how it could best be handled between the packing shed and the refrigerator car. J. W. Lloyd, in charge of fruit and vegetable marketing investigations at the college, discussed the grading and marketing of fruit, paying special attention to the peach crop which this year promises to be a record one.

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## New Bulletin Reports Long-Continued Wheat Variety Tests

Wheat variety trials conducted at several different points in the state during the past score of years by the College of Agriculture, show that hard wheats of the Turkey Red type are the best ones for northern and central Illinois while soft varieties are superior for the southern part of the state. Complete results of the investigations have been summarized by R. W. Stark in a report which takes the form of a bulletin entitled, "Productiveness of Varieties of Winter Wheat in Illinois". The tests for northern Illinois were staged at DeKalb, those for central Illinois at Urbana and those for southern Illinois at Alhambra and Fairfield. Southern Illinois tests of lesser importance also were carried on for a short time at Cutler, in Perry county.

Wheat, which has always been one of the most important crops grown in the state, is decidedly susceptible to climatic conditions and the different varieties vary widely in their adaptations to environment, Stark points out. Added to this is the fact that marked variations in climate occur within Illinois, since the state extends nearly 400 miles north and south. Selection of those varieties that are particularly suited to the different sections therefore is one of the problems of successful wheat production.

The tests at DeKalb have been going on since 1907 and during that time 44 crosses have been grown. Nineteen of these were hard, 23 soft, 1 of unknown origin and 1 hybrid, one parent of which was a hard wheat. These tests have demonstrated the superior winter resistance and high yielding capacity of the hard Turkey Red wheats such as Ilred (Turkey 10-110), which was developed by plant breeders of the agricultural college; Minnesota Reliable, Kanred, Red Russian, and the college strain of Turkey Red. Hardy Northern and Red Cross are among the soft varieties that made a good record.

Winter resistance frequently is the deciding factor in successful wheat production in central Illinois, just as it is in the northern part of the state. Of the 57 varieties and strains tested at Urbana since 1904, those of the Turkey Red type have proved superior in this characteristic. Minnesota Reliable, Worlds Champion, Ilred (Turkey 10 - 110) Kanred, Malakof 50460 and the college strain of Turkey Red are the hard wheats with the best records for a period of eight years or more. Other hard varieties tested for a shorter period which deserve mention are Red Russian, Malakof C. I. No. 4898, Minturki, Kanred 2401, Michikoff and Blackhull. Among the soft varieties which have made good records are Indiana Swamp, Dawson Golden Chaff 9-225, Red Rock, Red Cross, Michigan Amber and Gladden.

Forty-one varieties and strains were tested from 1906 to 1923 at Fairfield. All of these were soft varieties with the exception of eight which were of the Turkey Red type and one which was a hybrid with Turkey Red as one of its parents. Fulcaster, a soft variety which was taken as the standard one with which to compare all the others, was exceeded only by Illini Chief, also a soft variety, in average yield. Red Cross (Harvest Queen), Economy, Marvelous (Fulcaster), and Jersey Fultz are other varieties which were grown for six years or more and which made good records.

Mediterranean has yielded slightly better than Fulcaster on the Alhambra field as a six-year average, while Rudy, Gipsy, Illini Chief, Red Wave, Marvelous and Jersey Fultz, all soft varieties, have yielded but slightly less than Fulcaster as a five-year average.

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX | September 8, 1926 | Number 31


## Facts on Illinois Soils Come From Many Experiment Fields

More than 50 soil experiment fields distributed over the state on various types of land have figured in soil investigations being made by the experiment station of the College of Agriculture, in an effort to help farmers answer the many questions relating to profitable soil treatment and management. These fields are exclusive of those located on the campus at Urbana. Included among the latter are the Davenport and Morrow plots, of which the latter are the oldest soil experiment plots in America, so far as is known. The experiment fields vary from about one acre to 40 acres or more in size and have been in operation for periods varying from three years to half a century. Thirty-four fields, aside from those at Urbana, are now in operation, the others having been abandoned at different times for various reasons.

As a result of the work thus far conducted on these soil experiment fields, new problems have arisen calling for information on many points. Among the most important of these points are: the rotations best adapted to the region and to the system of farming being practiced; the comparative value of various legumes in the rotation; methods of utilizing legumes for economic soil improvement; the power of various crops to utilize insoluble plant-nutrient-bearing minerals, either native to the soil or applied to it; the effect of non-legume residues, such as cornstalks and straws, on the soil and on the growing crop; the amounts, physical condition, frequency of application and form of lime necessary to produce economic results; the effect on the soil and on the crops of excessive applications of limestone; the influence of soil type, crop rotation and limestone, as well as the frequency, rates and manner of applying rock phosphate on the effectiveness of rock phosphate; the comparative value of various phosphorus carriers under different conditions of soil and soil management, and a more thorough study of potash fertilizers under various conditions of soil and soil management.

On many of the fields, the treatment provides for two distinct systems of farming, namely, livestock and grain. The crops grown on the fields are always arranged in a definite rotation and for the most part a rather uniform scheme of soil treatment has been followed on the different fields. Bulletin 273 of the experiment station reviews the work on these fields.

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## Hitching Four Horses Abreast Makes Plow Pull Fourth Harder

Hitching four horses abreast to a two-bottom plow causes so much side draft that the team may have to pull 25 per cent harder than it otherwise would and in addition all or part of the horses have to pull at an angle to the direction of travel, according to A. L. Young, of the farm mechanics department, College of Agriculture. The only remedy is either to let one horse walk on plowed ground or else string the horses out in tandem formation, thus moving the line of pull over until it is at least somewhere near the line of draft. Of the two methods of eliminating side draft, the tandem hitch is by far the best, Young said.

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Printed in furtherance of the Agricultural Extension Act of May 8, 1914. H. W. Mumford, *Director*.

## Survey Shows Hessian Fly Infestation Is Lightest in Years

Infestations of the Hessian fly, most serious of all wheat insect pests, in general are the lightest this year that they have ever been in the past five years in Illinois, according to the annual Hessian fly survey which the state Natural History Survey has just completed in 50 of the principal wheat growing counties of the state. Although the fly will cause no very serious damage in any section of the state this fall, entomologists of the survey and crop specialists of the College of Agriculture are urging that farmers observe the safe dates, or dates for highest yield, in sowing wheat. Fields of wheat which are sown much before the recommended dates will certainly show a considerable infestation and will aid greatly in bringing back the fly for another season, it is pointed out.

While the infestation of Hessian fly is light this year it is general. Fly was found in nearly every field of the more than 200 examined. A distinct drop in numbers of flies present in wheat stubble was noted in all wheat growing sections with the exception of those in the north and northwestern counties where the infestation is about the same as in the fall of 1925. In other parts of the state the infestation is less than last year.

Maps showing the recommended dates on which wheat should be seeded in various sections of the state in order to escape severe damage by the Hessian fly and still be early enough to enable the plants to make enough growth to withstand the winter have been prepared by the Natural History Survey. The earliest of these recommended dates is September 17 and it applies across the extreme northern part of the state. The line gradually moves southward at the rate of about 13 miles a day until the line for September 30 passes through the northern part of Pike and Scott counties, the central part of Morgan and Sangamon counties, the northern part of Christian county, the southern part of Macon county, the northern part of Moultrie county, the central part of Coles county and the northern part of Edgar county.

The line continues southward at the rate of about 15 miles a day until, when the extreme southern part of the state is reached, the recommended date for seeding is October 12.

Date of seeding plots which have now been run for nine years in different parts of the state show conclusively that on the average best yields are secured from wheat sown within one or two days of the dates recommended. Wheat sown before these dates has given an average of from four to ten bushels an acre less than wheat sown on or just after these dates.

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## Light Hogs Usually Command Higher Price Than Heavy Ones

Light hogs have sold for more a hundredweight than heavy hogs on the Chicago market during 45 of the 60 months in the past five years, according to figures compiled by W. E. Carroll, chief of swine husbandry at the College of Agriculture. This is something for pork producers to keep in mind when they are trying to decide whether to market their hogs at weights of about 200 pounds or carry them along until they weigh around 350 pounds, he said. A scarcity of hogs and plentiful corn are conditions that justify feeding to heavy weights. A hog market which does not promise to decline too much also is an important factor. Most of these favorable conditions have been operating this year. It has been hard, sometimes impossible, to get feeder hogs to replace fat ones as they leave the feed lot and, furthermore, corn prices have not encouraged the sale of this grain as a cash crop.

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## Livestock Marketing Studies Reveal Many Unsolved Problems

Sixty years of development and improvement in the present system of marketing livestock through large terminal markets have failed to clear up all the selling problems of the individual farmer and livestock producer, and there are still numerous questions on which further facts are needed. This is indicated by the early results in livestock marketing studies which just recently were inaugurated by the experiment station of the College of Agriculture.

In one county, for instance, the investigators found two cooperative livestock shipping associations which each shipped about 3,000 hogs to a different market during the same year. One association received $9,000 more for the hogs which it shipped than did the other association. Many Illinois shippers have as many as four terminal markets readily available to which their stock can be shipped and the case of these two associations brings up questions as to whether one of the terminal markets was naturally a better hog market than the other, whether the hogs were shipped at different times of the year, whether one association picked better shipping days than the other or whether there was a difference in the grade of hogs sold by the two associations.

Trucking of livestock has brought up a number of new questions, now that good roads span the state and trucking has increased tremendously. In one county, about 40 miles away from a terminal market, it was found that nearly all livestock was shipped by rail and the best shippers in the county said that it paid them to do so. Livestock farmers in the next county, from which the haul averages about 20 miles longer, send most of their stock to market by means of the motor truck. There evidently are many questions as to shrinkage, costs, risks and losses, and responsibility of truckers in connection with the trucking of livestock. More facts are clearly needed on shrinkage and losses which result from the death or crippling of livestock. In one state alone shippers last year stood losses of $800,000 through the death or crippling of livestock in shipment. Direct selling of livestock to packers, a practice which has increased greatly during the past five years, is another one on which farmers are seeking information.

Studies which the experiment station has just undertaken in the field of livestock marketing had their start 20 years ago under direction of H. W. Mumford, the present dean of the college and director of the experiment station, who was then head of the animal husbandry department. A complete survey is now being made of the operations of cooperative livestock shipping associations and direct contacts established with individual shippers and with bankers and business men who are directly interested. It is hoped that this preliminary work will be completed within a year or less. A program of investigational work based upon specific problems will then be put under way. The studies are in charge of R. C. Ashby.

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## Close Culling Exerts Heavy Influence on Poultry Profits

Close culling was one of the big reasons why the best farm flocks in the group of 234 that were entered in the Illinois flock record project last year paid profits of about $2.45 a hen more than the poorest flocks in this group, it is pointed out by John Vandervort, poultry extension specialist of the College of Agriculture, who has charge of the project. The best one-third of these 234 flocks paid profits of $2.45 a hen for the year, while the poorest one-third of the flocks paid profits of less than one cent a hen. Owners of the best one-third of the flocks culled out and disposed of 53 per cent of the original number of their birds during the year, while owners of the poorest one-third of the flocks culled out only 40 per cent of their stock.

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX September 15, 1926 Number 32




## Method Perfected For Making New Fermented Milk Drink

A new fermented milk drink, known as acidophilus milk, is being successfully produced on a commercial scale in the creamery of the College of Agriculture by means of a method worked out by M. J. Prucha, chief in dairy bacteriology. Heretofore, serious difficulties have been encountered in trying to produce the milk and it has been made only in a limited way on a commercial scale. As produced in the college creamery, the beverage has a light, smooth body and good flavor and tests are now being made to compare its medicinal value with that of other fermented milk drinks.

The use of fermented milk drinks has increased and probably will continue to increase, but there has been a difference of opinion as to the kind of germs best suited for this purpose and also as to the specific value of the different germs. Up to the present time most of these fermented milk drinks have been prepared largely by using bacteria of the lactobacillus bulgaricus group. In recent years attempts have been made to use bacteria of the lactobacillus acidophilus group instead. The experiment in which the acidophilus milk was successfully produced was undertaken for the purpose of getting information on the relative value of the two groups of bacteria and also to standardize the methods of preparation.

Very careful control of bacteriological conditions is needed for the successful preparation of acidophilus milk, and dairy plants where such control is not possible probably will not be able to make this milk, Prucha said. This is the method of preparation: Skimmilk of good quality is pasteurized in a glass lined vat at 175 degrees Fahrenheit for 30 minutes. It is then cooled to about 100 degrees and allowed to stand from three to four hours. It is again pasteurized at 175 degrees for 30 minutes. It is then cooled down to 100 to 102 degrees and inoculated with a vigorous acidophilus culture, at least 3 percent of inoculum being used. When an acidity of 5/10 to 6/10 percent is reached, the milk is cooled to about 60 degrees. Cream is added to bring the fat content up to about 1 percent. About 5 to 10 percent of a good lactic acid starter also may be added to improve the flavor. The milk may be then passed through a homogenizer and over a cooler. It is then ready to drink.

- M -

## Unique Problem Of Marketing Calhoun Apples Is Studied

Calhoun county, without a railroad within its borders, produces about one-half the commercial apple crop of Illinois. Water transportation has been largely depended upon in handling the crop. Some of the marketing problems which exist as a result of this situation are being studied by the experiment station of the College of Agriculture in the hope that present methods of handling the crop can be improved to the benefit of growers.

Preliminary studies have been made by the experiment station regarding existing and potential transportation facilities, methods of grading and methods of marketing the crop. Inspection of Calhoun county apples in cold storage at St. Louis showed that some of them were very well graded but that many from that region are improperly graded, with the result that the reputation of the entire lot suffers.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Best Dates On Which To Gas Peach Tree Borers Are Here

Peach tree borers are as bad as ever in Illinois this year and the best time for using the P.D.B., or para-dichlorobenzene, treatment for the control of this insect is at hand, it has been found in studies which S. C. Chandler, assistant entomologist of the Illinois State Natural History Survey, has made of the pest in southern Illinois. The moths of the borer have been coming out at Carbondale since July 5 and are now more abundant than at any other time during the present season. These moths, which look something like wasps, lay their eggs on the ground around the base of the peach tree or on the bark of the tree itself. These eggs hatch into white worms which bore into the bark and often completely girdle and kill the tree.

The best time for applying the P.D.B. treatment this year will be from September 10 to October 5 in northern Illinois; from September 20 to October 10 in central Illinois, and from September 25 to October 15 in southern Illinois, according to Chandler's observations. Experiments for the last several years have shown that these dates will give the best results. The treatment consists in applying the para-dichlorobenzene crystals in a ring about the base of the tree. This method has proved so effective that it is now used by nearly all the larger peach orchardists throughout the United States.

If the material is applied on the dates given it will not be so early that it is likely to injure the tree or to have lost its effectiveness before the last eggs of the borers hatch. On the other hand, if the material is applied too late after the ground has become cold, it will not give off enough gas to kill the insects.

Circular No. 8,which is published by the Illinois State Natural History Survey, gives complete directions for using the treatment.

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## Three-Three Tandem Arrangement Is Best Six-Horse Hitch

Although most of the commercially made six-horse tandem hitches and many of the home made ones of this size are arranged so that there are two horses in front and four behind it would be far better from the standpoint of lessening sidedraft and giving the horses more room to put three horses in front and three behind, A. L. Young, of the farm mechanics department, College of Agriculture, says. The easiest kind of 3-3 hitch to make is the one in which a short bar, 20 to 30 inches long, is placed on the plow. The rear three horses pull on one end, while a lead rod is fastened to the other end and run at a slight angle to the front three horses. If the smaller horses are put in front on a fairly short evener, this angle will be so small as to be hardly noticeable.

Those who have the commercial type of hitch can convert it into a 3-3 arrangement by taking it as arranged for five horses (2-3), putting two small pulleys on the single tree of the fifth horse and letting this horse and the horse ahead of him pull against each other through the two pulleys, the lead horse having long extension traces made of rope or chain. These two will pull against the other four, and the plow therefore must be attached to the long bar at the proper place.

It would be possible, of course, to put a heavy three-horse evener on the plow and equip each of the single trees with pulleys as described above. This hitch, known as the Hallman, is being used to a considerable extent in the west and northwest. A commercial hitch, in which a rear horse pulls against the horse ahead of him through short vertical levers fastened to the single tree on each side of the rear horse, gives promise of being satisfactory in many respects. It is a little simpler than the Hallman hitch and like it, eliminates the front evener.

- M -

## Farmers Report Worms Are Damaging Summer Sown Alfalfa

Many reports of damage to summer sown alfalfa by the alfalfa web worm and some of the fall cutworms have come to the College of Agriculture during the past few weeks. All fields of alfalfa sown during the past month should be examined and if the web worms are found in considerable numbers the alfalfa should be sprayed and arsenate of lead spray prepared at the rate of two pounds to 50 gallons of water. Cutworms may be destroyed by poisoned bran bait such as is used for army worms or grasshoppers, W. P. Flint, chief entomologist of the Illinois State Natural History Survey, said.

"Alfalfa sown this summer may be heavily infested with the web worm and the stand entirely destroyed before the presence of the pest is suspected. The web worm is a little green, black-spotted worm which attacks the plants close to the ground. It spins a light web about the plants and hides in this web most of the time, coming out to feed on the young alfalfa plants. As the web contains many bits of dirt and trash, it often is hard to see.

"The arsenate of lead spray for the control of web worms may be applied with a potato sprayer or, if this is not available, with an orchard sprayer. The spray should be put on at the rate of about 75 to 100 gallons an acre. This will cost about $2 an acre, but the spray is highly effective in killing the worms. If no treatment is given and the worms are abundant, the entire stand of alfalfa may be killed.

"There are two species of cutworms which often injure alfalfa in the fall. These are the fall army worm and the cotton cutworm. Both are rather large, very dark in color and have conspicuous stripes and spots on their bodies. Both of these species can be destroyed by the use of poisoned bran bait. This bait consists of 1 pound of paris green or white arsenic mixed dry with 25 pounds of bran. To this is added 3 gallons of water in which has been stirred 2 quarts of cheap molasses. The bait should be sown broadcast over the field at the rate of about eitht to ten pounds an acre. This bait also will clean up any grasshoppers which may be working on the new alfalfa stands."

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## Better Feeding Boosts Dairyman's Monthly Returns $46

A slight improvement in his feeding methods made a difference of $46.46 in the monthly returns of one Moultrie county dairyman whose case is cited by dairy extension men at the College of Agriculture to show the value of using a balanced ration and feeding cows according to their production. At the time this dairyman entered his herd of eight Jersey cows in the county dairy herd improvement association, he was feeding every cow equal amounts of a ration consisting of 2 parts ground corn and 1 part ground oats, supplemented with alfalfa hay and corn silage. Their production for the first month they were in the association was 2,494 pounds of milk containing 113 pounds of butterfat which was worth $50.42. The value of this butterfat lacked $15.14 of even paying for the feed, not to mention other expenses.

Upon the advice of P. J. Smith, tester in the dairy herd improvement association, the dairyman added a half part of soybean meal to the ration he had been feeding and cut down the amount of grain and silage to a little more than half of what it had been before. The result was that the feed bill for the cows during the second month they were in the association was $43.16, a saving of $22.80 compared to the previous month. Furthermore, the same eight cows increased their production to 3,597 pounds of milk containing 171 pounds of butterfat worth $74.08, or $23.66 more than the previous month. The total financial gain made by this dairyman by reason of the reduced feed costs and the increased value of butterfat produced by his cows therefore amounted to $46.46 for the month.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX September 22, 1926 Number 33


## Illinois Sends Large Delegation To Corn Borer Conference

A delegation of a dozen or more entomologists, agricultural college workers, farm advisers, bank officials, newspaper men, corn canners and farmers from Illinois will attend an international conference which will be held at Detroit September 23, 24 and 25, to consider methods of prevention and control for the European corn borer, most serious of all corn pests, which has increased its threat to the corn belt during the past season. The conference, the third of its kind, will be more important than either of the other two from an Illinois standpoint, for the borer is now closer to this state than it has ever been in the history of its American invasion. L. H. Worthley, administrator of European corn borer control for the federal department of agriculture, is calling the conference.

A partial list of the Illinois delegates includes W. P. Flint, chief entomologist of the Illinois State Natural History Survey; three staff members from the College of Agriculture, J. C. Hackleman, crops extension specialist; F. C. Bauer, soils extension specialist, and R. I. Shawl, of the farm mechanics department; five county farm advisers, Ray E. Miller, Adams county; Otis Kercher, Vermilion county; C. H. Keltner, Winnebago county; L. W. Wise, Iroquois county, and C. W. Simpson, Gallatin county; W. M. Givler, chairman of the agricultural committee of the Illinois Bankers' Association; E. G. Thiem, director of information, Illinois Agricultural Association; Brice Martin, agricultural editor of the Decatur Herald, and Frank Bill, of the agricultural department, Bloomington Pantagraph. H. W. Mumford, dean of the agricultural college, is a member of the international committee on corn borer control, but will be unable to attend the meeting.

Field trips for the purpose of viewing infested fields in Ohio and Michigan are on the schedule for the first day of the conference, while the second day will be given over to a trip through Essex and Kent counties, Ontario, where additional infested fields will be visited and the work of the borer studied. Demonstrations of new machines which have been designed to aid in the control of the borer will be given during the trip through Ontario. A general conference to discuss the situation will be held in Detroit on the 25th.

About 75 miles have been covered during the past summer by the corn borer in its advance toward Illinois and the situation now is more threatening than at any time in the history of the pest in this country, Flint said. Last year, the pest had not yet reached Indiana as far as was known, but this year it already has been found in four Indiana counties and has spread nearly across Michigan.

Serious damage, however, will probably not occur in the newly infested regions for about five years. Furthermore, if the borer should become serious in Illinois it will not wipe out the corn growing industry, although the presence of the pest may make it necessary to change present methods of raising the crop, Flint said.


Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Husking Time May Be Too Late For Seed Corn Picking This Year

With corn throughout the corn belt from two to three weeks late, the wise plan this fall will be to select seed corn from the field when it is in the dent stage rather than wait until husking time, George H. Dungan, assistant chief of crop production at the College of Agriculture, says.

"It is true that in seasons of late frost there is an advantage in letting the corn that is to be used for seed come to complete maturity on the stalk. Frequently, however, the weather is so cold and unfavorable during the period when the corn grain is making its final development that the vitality and vigor of the germ is affected. There is serious danger that such will be the case this fall. Under such conditions, seed corn harvested after it is well dented will make a better crop than that left on the stalk a longer period of time.

"On the other hand, seed corn picking should not be done too early. Corn picked in the 'milk' is practically always inferior for seed purposes to that harvested later in its development.

"The ears are usually in the proper stage to be harvested for seed when the husks are brown and the stalk and the majority of the leaves of the plant are green. At this period in the growth of the parent plant, one can note its vigor and general health. Plants infected with smut, those bearing streaked leaves or blighted top leaves and those showing a marked reddening of the stalk and leaves produce ears that are not suitable for seed. Ears with husks covering the tip should be chosen in preference to those with exposed tips. The shank to which the ear is attached should be medium large and strong enough to hold the ear at an angle a little above horizontal. It is a good plan to save more seed than what is thought at the time will be needed. The rule should be, 'Get plenty while you're getting'."

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## Yarding System Aids In Control Of Poultry Diseases And Pests

A healthy flock is the first requirement for success in the poultry business, but unless farm chickens are kept under a definite system of yarding and housing it is doubly hard to control diseases and parasites, it is pointed out by poultrymen at the College of Agriculture. Ordinarily chickens are allowed to run in the barnyard and every place else about the farmstead. The result is that the soil becomes so contaminated that trouble is likely to follow. Then too, in the case of disease infection or worm infestation it is hard to find clean ground near the hen house. Remedies cannot be relied upon to relieve an infection or an infestation without the use of clean ground. If two yards are provided for the mature flock one can be plowed up, cropped and kept free of chickens for a year while the second is used as a range, the poultrymen suggest.

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## Poultry Extension Specialist Leaves For Penn State Position

John Vandervort, who resigned as poultry extension specialist of the College of Agriculture to accept an appointment as assistant professor of poultry husbandry extension at Pennsylvania State College, has left Illinois to take up his new work. He was graduated from Cornell University in 1923 and for a while before coming to Illinois was in charge of the cooperative poultry project in two New York counties.

## Method Devised For Saving Apple Trees Infected With Blight

Investigators in the experiment station of the College of Agriculture who have been working on the problem of controlling fire blight, which is now taking a heavy toll in apple orchards of the state, have succeeded in working out a procedure whereby apple trees infected with hold-over fire blight cankers can be saved and a large percentage of future infections prevented, if the procedure is followed carefully and systematically, it is announced by Dr. H. W. Anderson, who is in charge of the work. The object of the procedure, which was worked out as the result of observations and experiments, is to save trees, not to control blossom and twig blight in the entire orchard. Hold-over blight cankers are now killing thousands of Willow Twig apple trees in Calhoun county, the most important apple producing one in the state, and in adjoining counties. In fact, the situation has become so serious that the Willow Twig variety, one of the most profitable to western Illinois growers, is doomed unless satisfactory methods of control are put to use, Dr. Anderson said.

Of the several steps in the procedure which the investigators have worked out to save apple trees infected with hold-over cankers, the first is to plot the orchard, indicating on a diagram the exact location of all diseased trees and the number of cankers on each tree. The cutting out of all cankers during the winter months is the next step in the procedure. Special instructions are needed for this work, according to the investigators. The procedure further calls for careful disinfection of the cleaned canker and all tools that are used in cleaning it, the painting of the wounded surface according to a prescribed method and careful attention to follow-up work. The investigators have found that new blight infections may arise from insect punctures or from some obscure "pocket" which was overlooked. Such cankers should be cleaned out promptly and watched with special care, since the chance of getting all diseased bark removed is less in cases of this kind than it is when the cankers are cleaned in the winter.

The procedure which the investigators have worked out must be followed throughout the year, and year in and year out, if success is to be had with it, according to Dr. Anderson. Complete details of the plan are given to orchardists on request.

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## Delay In Housing Pullets Is Likely To Halt Their Egg Laying

Pullets which are left on range after they start laying are likely to stop producing after they are housed and it therefore is advisable to put them in winter quarters just as soon as any of them show signs of laying, poultrymen at the College of Agriculture, say. In moving them it should be remembered that pullets are very susceptible to changes and should be moved at a time when there is least chance of disturbing them. Late hatched and slow maturing pullets should not be housed closely too soon. It is essential that they be fed a good growing mash and left on range or in a yarded area rather than kept in the laying house continually. On the other hand, pullets which are left on range too late in the fall during damp, cold weather are likely to have colds and roup. A suitable laying mash should be kept before those pullets which are ready to lay. A mixture which has given satisfactory results can be made from equal parts by weight of wheat bran, wheat middlings, ground corn, ground oats and meat scrap. One pound of salt should be added for each 100 pounds of mash. Feeding grain liberally will help the pullets gain rather than lose weight after they start laying. This is desirable if they are expected to continue laying heavily throughout the winter.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume XI September 29, 1926 Number 34

## U. of I. Tests Shed New Light On T. B. Eradication Problem

A new angle has been added to the problem of livestock tuberculosis eradication with the discovery by Drs. Robert Graham and E. A. Tunnicliff, of the animal pathology and hygiene division, College of Agriculture, that calves are suscepitble to the avian, as well as the bovine, type of tuberculosis. The avian type of the disease is now widespread in poultry. Results obtained by the two investigators indicate therefore that tuberculosis among chickens must be given more consideration than it is now receiving if the disease is to be eradicated from livestock and a check made on the heavy losses which are being suffered by farmers.

The Illinois experiments constitute the first demonstration that calves are susceptible to the avian type of tuberculosis to a degree that may play a part in the control of the disease under farm conditions. It previously had been demonstrated in the same experiments that the avian type of tuberculosis can be transmitted to hogs, whereas the general supposition before had been that hogs were affected only by the bovine type.

In trying to determine whether or not calves are susceptible to the avian type of tuberculosis, the Illinois investigators allowed tuberculous chickens to come in contact with healthy calves for periods of time varying from six months to three and a half years. The results indicated that avian tuberculosis is transmitted to calves more slowly and with less regularity than to swine, but that calves may contract the disease when exposed to infected flocks of chickens on the farm.

In a further study of the problem the investigators examined 47 bovine lymph glands, each infected with a localized case of tuberculosis, to determine the type of the disease present. Forty-one of the 47 glands were viable. Of the 41, a total of eight, or 19.5 per cent of them, carried a type of tuberculosis which was capable of producing slight lesions of the disease in chickens and progressive lesions in guinea pigs. In other words, since the typical avian type produces generalized lesions of tuberculosis in fowls and not in guinea pigs, while the typical bovine type produces generalized lesions in guinea pigs and not in fowls, it is apparent that the strains of tuberculosis present in the eight glands were aberrant, or intermediate, strains that may produce tuberculosis in fowls as well as calves. Four of the 41 glands, or 9.7 per cent of them, carried typical avian strains of tuberculosis. The remaining 29 glands carried the bovine type of the disease.

These results suggest that occasional cases of avian tuberculosis develop in calves under natural conditions. It is logical to suppose that the transmission of the avian type of the disease to calves may be the result of continuous direct association with tuberculous fowls Dr. Graham pointed out.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Fourteen Tours Show Worth Of Good Farm Management Methods

How recommended principles of successful farm management work out under actual farm practice has been demonstrated to approximately 500 farmers during the past several weeks by means of farm management tours conducted in 14 central and northern Illinois counties by the farm organization and management department of the College of Agriculture, in cooperation with the farm advisers of the counties. Sixty successful farms were visited, each of the farms being one of the 1,100 whose operators kept financial records last year in the farm accounting project of the agricultural college.

Like the tours of former years, the ones this year again emphasized the stabilizing effect of having several important sources of income on corn-belt farms, according to R. R. Hudelson, extension specialist in farm organization and management. The farms visited on the tours generally were not dependent on the price of one or two products. Neither were the operators of these farms without profitable work to do when the one or two products did not need attention, he pointed out.

The matter of crop yields was another factor which the tours emphasized as affecting farm profits and being at least partly under the control of the farm operator. The necessity of keeping up crop yields was strikingly brought out when farm after farm selected on the basis of profits earned was found on these tours to be yielding higher than neighboring farms.

"Operators of these farms almost invariably were following a rather definite cropping system which called for a sizable acreage of legumes and a high percentage of land in those crops which normally pay best. A very high percentage of these farms also had received limestone or phosphate or both. These successful farm operators evidently do not believe that the solution of the farm surplus problem lies in producing less an acre. They did show, however, that they were not afraid to turn part of the acres out to legumes in order that the cropped acres might produce more for the labor and money expended.

"Neither were these men strangers to the most up-to-date and well established methods of getting the greatest amount of livestock products from the available feed supply by means of well selected stock, kept healthy and handled with a view to utilizing as much of the farm by-products as possible. All were interested in the best established ways of making use of the legumes found necessary in their cropping systems."

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## Breeding From Late Laying Hens Builds Up Better Laying Flocks

Eggs usually are the chief source of income from the farm poultry business and one of the quickest ways to build up the egg laying capacity of the flock is to breed from the best of the late laying hens rather than from the young pullets which have not had a chance to show their worth as layers, poultrymen at the College of Agriculture say. Only those late laying hens which have the proper size, type and other desirable characteristics should be used in the breeding pen. Poorly colored birds and those with disqualifications, such as side sprigs on the comb and stubs on the legs, are undesirable as breeders, the poultrymen say.

The most desirable of the late laying hens which molt as late as September 15 or later should be mated with the best males of the flock or preferably with males secured from a breeder of a good strain of production-bred stock. A small pen of 15 to 25 breeders will produce cockerels for the flock matings the following season and furthermore, will help to lay the foundation for a flock of high producing birds.

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## Holding Spring Pigs For Finish On New Corn Is Expensive

Farmers who have been holding back their spring pigs with the idea of finishing them on new corn this fall and then marketing them in November have been following an expensive practice, according to figures worked out by W. E. Carroll, chief of swine husbandry at the College of Agriculture. According to his figures, there hasn't been a year during the last ten that would show a profit for light-fed, late-marketed hogs. The only time that light feeding of pigs on pasture is likely to pay is during a year when summer corn is very high priced and there is a rather definite assurance of much cheaper new corn and not too much difference in early and late markets for finished hogs.

"It is true that new corn in the fall usually is cheaper than corn during the summer months. Last year, for instance, the October-November price of corn was from 8 to 32 cents a bushel lower than the monthly price from April to September. Average figures for the past five years show that summer corn was from one cent lower to six cents higher with an average of about two cents a bushel higher than October-November corn. On the other hand, average hog prices during the past five years have been from 55 cents to $1.40 a hundred higher in September than in November, the average being 85 cents.

"Let us assume now that one bunch of March pigs is to be full-fed on pasture for the September market and another will be carried along more slowly on less daily feed and finished on new corn for the November market. Under some conditions the total concentrates required to bring the two lots of pigs to market weight may not be greatly different. Usually, though, the lot carried on the light ration will take somewhat more total feed because the pigs are maintained for a longer period. They will always require more pasture.

"Light-fed March pigs usually will weigh approximately 125 pounds by the time the new corn is available. The new corn which would be required to bring them to market weight of 225 pounds would, according to the average figures cited, represent an approximate saving of 14 cents (seven bushels at two cents) over the summer corn fed to the full-fed pig for his last 100 pounds gain. On the other hand, the full-fed pig marketed in September will, under the five-year average figures, bring $1.91 more than his light-fed mate which was finished on new corn and marketed in November. Thus, by this method of reasoning, waiting for cheap corn is an expensive practice to the extent of $1.77 a head."

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## Hogs Suggested As Efficient Salvagers Of Damaged Grain

Use of hogs to salvage the large amounts of water-damaged small grains now on the hands of Illinois farmers is suggested by swine specialists at the College of Agriculture. Although the heavy rains which delayed threshing have damaged much grain and reduced the market value of it, the feeding value has not been injured. There is no class of farm animal which can do a better job of salvaging the damaged grain than can hogs, according to the specialists. "Provided it is not too light and chaffy, damaged wheat can be considered practically equal to corn for hogs and, furthermore, it will require less protein supplement than corn does. If the wheat is hard it should be coarsely ground. Although rye is less valuable and also less palatable than wheat, it can be used effectively to the extent of one-fourth of the ration when it is ground. Oats are rather bulky and will not be as good in the ration of fattening hogs as either wheat or rye. However, stock hogs and brood sows can utilize considerable amounts of oats even though the grain may have been damaged to some extent by rains."

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College Experiment Station, and Extension Service




Volume IX October 6, 1926 Number 35

## Beef Proteins Found Inferior To Those Of Eggs, Milk, Pork

Three different foods, eggs, milk and pork, all are superior to beef when these foods are ranked according to the nutritive value of the protein which they contain, according to results of experiments by Dr. H. H. Mitchell, chief of animal nutrition in the experiment station of the College of Agriculture, University of Illinois. Protein is one of the essential elements of foods.

Beef proteins have an average biological value of 69, according to ten individual determinations made by Dr. Mitchell. This figure means that 69 per cent of the digestible crude protein, or total nitrogen, of beef is available in covering the total protein requirements of growing animals, such as rats. This value of 69 for the proteins of beef compares with a value of 94 previously obtained for eggs, 85 for milk and 74 for pork.

The claim that the cheaper cuts of meats contain protein equal in nutritive value to that of the more expensive cuts is not borne out by the results of investigations which Dr. Mitchell made on the biological value of the proteins of different cuts of meat. It was found that there was considerable variation in the nutritive value of proteins in different cuts of meat, this variation apparently depending upon the proportion of connective tissue in the cut. A cut of meat having a large proportion of connective tissue and having, therefore, a more fibrous texture would be expected to contain protein with a lower biological value than a cut with more muscular tissue and less connective tissue, Dr. Mitchell explained.

One object of the experiment has been to compare the biological value of the proteins of animal foods with those of other staple articles in the American diet. In this connection a study was made of the protein of cocoa. Both cocoa and chocolate are concentrated foods containing the same protein mixture and differing mainly in that the fat has been partially removed from chocolate in the manufacturing process. Both foods, however, particularly cocoa, are rich in crude protein. It was found, however, that this protein has a very low and a very variable digestibility in rats. In 15 tests the crude protein of cocoa had an average digestibility of 38 per cent. The biological value of the protein of cocoa also was found to be low, averaging 37. Cocoa and chocolate cannot, therefore, be considered as important sources of protein in nutrition, according to Dr. Mitchell. Although cocoa contains an average of 21.5 per cent of crude protein, equivalent to lean meat in this respect, only 38 per cent is digestible and only 37 per cent of that digestible is available to the body in covering protein requirements, the experiments showed. In other words, cocoa contains 8.2 per cent of digestible crude protein and only 3 per cent of net protein that the body can actually use in its growth and up-keep.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Unsafe To Postpone Peach Leaf Curl Spray Until Spring

This fall, and not next spring, is the proper time for orchardists to take steps to prevent another outbreak of peach leaf curl such as the one of the past spring when thousands of dollars worth of damage was done in the central states and many trees so devitalized that it will be several years before they will entirely recover, Dr. H. W. Anderson, associate chief of pomological pathology at the College of Agriculture, University of Illinois, points out.

Spring spraying is unsafe and was the chief cause of the serious outbreak of leaf curl during the past spring, according to Dr. Anderson. Many growers waited until spring to do their dormant spraying, with the result that weather conditions were such that the sprays could not be applied before the buds swelled. Some growers also depended upon an oil spray, since they had not had any leaf curl for several years and had come to believe that no damage would be done in the future. There is absolutely no way of predicting the probable severity of the disease and the only safe way is to apply the proper spray materials in the fall. "Many orchards which would have borne a full crop this season did not have a peach on them, thus proving that leaf curl may become serious enough to ruin an otherwise promising peach crop. Fortunately, no extra spray is needed in addition to the dormant spray which is put on in the fall, since this spray will control both scale insects and leaf curl, provided the right materials are used and the spray is put on at the proper time. Either of the usual dormant sprays can be recommended as a result of experiences of the past season. If there are no signs of scale insects or only a slight infestation of them, lime sulphur, dormant strength, can be used. If scale is so serious as to warrant an oil spray the grower can use bordeaux oil emulsion. It is highly important that bordeaux be used with the oil emulsion, since oil emulsion alone has no effect on leaf curl. A 4-4-50 bordeaux mixture should be prepared in the usual manner and to this should be added 1½ gallons of stock boiled oil emulsion for each 50 gallons of bordeaux mixture."

"Growers should start spraying just as soon as most of the leaves are off the trees. The spraying may be continued until freezing weather. If the orchard cannot be finished before cold weather, the spraying should be continued during the first warm days in February. Spraying after the middle of March cannot be depended upon to control leaf curl. It is better to use the standard sprays such as lime sulphur or bordeaux oil emulsion than to try any of the commercial sprays which are supposed to control leaf curl."

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## Old Hen Houses Can Easily Be Converted Into Modern Types

Many of the old, unfit poultry houses now to be found on farms could be remodeled at little expense and trouble in such a way that they would provide a comfortable home for the flock, in the opinion of poultrymen at the College of Agriculture, University of Illinois. The common type of house often is too narrow, allowing little chance for ventilation without drafts blowing directly on the birds. The narrow house, 10 to 14 feet wide and of shed type, can often be converted into a half monitor type by building an eight to ten foot shed on the front of it, sloping it toward the south, the poultrymen say. Houses with the gable type of roof, especially those which are too high, usually will be made more comfortable for the hens if boards or strips of wire fencing are laid across the plates and a layer of straw placed on top of these."

"It will pay to study the types of poultry houses adapted to climatic conditions where the farm is located before one decides to build. Many expensively built poultry houses turn out to be unsatisfactory because the requirements of a good poultry house are not kept in mind."

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## Delayed Season Brings Another Soft Corn Storage Problem

With the corn crop already dangerously late, the question of how to store soft corn to produce a good feed and a high grade market grain looms large before Illinois farmers, it is pointed out by W. R. Tascher, assistant in crop production at the College of Agriculture, University of Illinois. It is true that much of the soft corn on farms of the state will be handled in the form of silage, but thousands of bushels will be left to store in the ear, he said.

"Corn in the crib is on the danger line of being spoiled when its moisture content is about 25 per cent. This danger line will vary, of course, depending upon several factors. If the weather at harvest time is damp and rainy, the danger is increased. Under such conditions, the cheapest and best way to handle the problem is to leave the corn in the field and spend the time building artificial dryers. A number of different types are described in Circular No. 293 of the college.

"Pickers can help in lessening damage to corn from excessive moisture by taking off husks and silks cleaner than is usually done. This will help in getting freer circulation of air through the corn when it is in the crib. The spout which delivers the corn into the crib should be moved often to keep silks, husks and shelled corn from piling up in one spot. Throwing out rotten and very wet ears also will help in drying out soft corn and preventing spoilage. In fact, anything that will aid the free circulation of air will speed up the drying process. Ordinarily, it is advisable to store good corn alone rather than mix it with corn of questionable moisture content. When this is done the soft corn can be given all the attention.

"All corn which reaches terminal markets is graded according to federal grain standards, and a superior product ordinarily will bring enough of a price premium to more than offset the cost of better storage. Moisture content affects the grade of corn in three ways. These are: amount of water present, total damage and heat damage."

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## Sanitation Proves Valuable For Chickens As Well As Hogs

That sanitation with chickens is just as valuable as swine sanitation was demonstrated during the past summer by C. H. Wilke, a McLean county farmer living at Anchor, who gave poultry sanitation a trial at the suggestion of poultrymen from the College of Agriculture, University of Illinois. Wilke, who is cooperating with the extension service of the agricultural college in keeping records on his chickens, took off a hatch of 437 chicks in March and placed them on clean ground where no chicks had ever been raised before. The ground happened to be in a corn field. In line with the sanitation system which he was practicing, Wilke used movable brooder houses. No signs of disease showed up in these chicks throughout the entire season and recently 190 pullets were taken from the bunch and placed in winter quarters. They were plump and ready to lay.

Wilke's experiences with a batch of April chickens which were raised the old way are a striking contrast to the results which he obtained under the sanitation plan. There were 1,332 chicks in the hatch that came off in April. They were raised in old chicken yards where hens had run before and where chicks had been raised in previous years. The result was that one disease alone, coccidiosis, wiped out 25 per cent of the chicks. Roup followed as a result of the weakened condition of the stock. After proof of this kind that sanitation with the poultry flock pays big dividends, Wilke is planning to adopt a definite poultry flock sanitation program as outlined by the agricultural college.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX October 13, 1926 Number 36


## Corn Borer Now Feared As Worst Problem In Mid-West Agriculture

With the European corn borer spreading to new fields each year and increased damage being done in areas where the pest already is established, most of the authorities who attended the recent international corn borer conference which was held as scheduled in Ohio, Michigan and Ontario, Canada, were generally agreed that the insect presents the most serious problem facing agriculturists of the middle west at the present time, according to a report on the conference by W. P. Flint, chief entomologist of the Illinois State Natural History Survey, who attended the sessions in company with specialists from the College of Agriculture, University of Illinois and other interested persons of the state.

Those attending the conference further agreed that the best brains and effort available will be needed to work out a practical means for commercial control of the insect, according to Flint. The problem is one which affects not only farmers but also every industry dependent upon agriculture, he pointed out. Approximately 200 persons representing practically all of the large corn producing states of the United States and Canada attended the conference.

It was brought out at the conference that the borer this year has extended its range from 50 to 75 miles beyond the area known to have been infested last year. Another point which was stressed at the meeting was the continued heavy damage to corn in southwestern Ontario where the insect this year will cause a loss of from 25 to 100 per cent of the corn over an area of about 1,200 square miles, as compared with the same degree of loss over about 400 square miles in 1925.



Concern also was expressed at the conference over the increase in the abundance of the insect in northern Ohio and Michigan, where commercial damage will occur for the first time this season, and the danger of still more rapid spread of the insect next season by the drift material in streams, Flint reported.

"Marked progress has been made in the development of farm machinery for handling infested corn stalks and killing the borers in these stalks. The cleanup of corn stalks by machinery or hand is certain to add greatly to the cost of corn production, but is at present the best means of controlling the borer. Engineers of the Ohio Agricultural Experiment Station estimated that the cost of cleaning up an area 50 miles square was $1,740,608.

"Progress also has been made in developing parasites that would prey on the corn borer and thus aid in controlling the insect. Some 11 different species of parasites have now been liberated in this country and two of these have developed to the point where specimens of them have been recovered. It should be borne in mind, however, that the work of the parasites is of necessity slow and that it will be from eight to ten years or more before the effect of these parasites can become noticeable in reducing numbers of the borer."

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Poisonous White Snakeroot Is Sold Commonly As Flowering Plant

Listed in seed and nursery catalogues under the scientific name of Eupatorium uriticaelfolium, or Eupatorium ageratoides, the deadly weed, white snakeroot, is being widely sold as a flowering plant, it has been disclosed by authorities at the College of Agriculture, University of Illinois. This information comes during a season when the weed has been more serious and caused more alarm than during any previous year. It is estimated that trembles, or milk sickness, the disease which is caused by the plant, has killed thousands of dollars worth of livestock this year and caused the death of more than a dozen people who drank the milk from cows poisoned by the weed. In commercial circles, the white snakeroot plant is classed as one of the ageratum group, but the true ageratum is not poisonous, plant specialists at the college say.

That the sale of the weed as a flowering plant is not a generally recognized fact is indicated by a recent case in which a southern Illinois farm adviser sent the animal pathology and hygiene division of the agricultural college two specimens of a plant resembling white snakeroot. With the specimens was a report that the plant was being sold in that section of the state as ageratum. In response to the farm adviser's request, the college conducted tests which positively identified the plant as white snakeroot.

Despite the sale of the plant for decorative purposes, there is one redeeming feature in the situation and that is that it will grow only in damp, shaded places, H. B. Dorner, chief of floriculture at the college, pointed out. Open pastures and prairies cannot become infested with the weed, he explained. Furthermore, a number of other decorative plants which are poisonous to both livestock and humans are being sold at the present time, he said. On the other hand, white snakeroot seeds freely and the weed can become widely disseminated in a short time because of the light seeds which resemble milkweed or thistle seeds and which can travel long distances.

Just how common the weed is and how widely it is used for decorative purposes at the present time has been brought out in connection with the recent tragedy near Paxton in which a mother and her daughter died from drinking the milk of cows which had been poisoned by the weed. Friends of the family ordered a floral piece for the funeral from a florist in a nearby city and in making up the piece he inadvertently used a number of the white snakeroot flowers. The large number of specimens which the college is receiving for identification from all corners of the state is further proof that the weed is widespread throughout Illinois. The advice of Robert Graham, chief of animal pathology and hygiene, is that cattle be kept off shaded places. He points out that land which is shaded enough to grow white snakeroot will not grow good pasture and that land which is exposed enough to grow good pasture will not grow white snakeroot.

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## U. of I. Investigators Find New Cause Of Poor Flavors In Butter

Investigations which dairy bacteriologists at the College of Agriculture, University of Illinois are conducting with a view to reducing the heavy losses caused by undesirable flavors and spoilage in dairy products show that butter passed through certain printing machines in which it is crushed as it passes through the machine does not keep as well as butter not so treated. In one case a very decided roquefort cheese flavor quickly developed in butter passed through such a machine. When not passed through the machine, the same butter did not develop the flavor and kept much longer. M. J. Prucha and J. M. Brannon, who are in charge of the investigations, are continuing the work in the hope of finding out what causes the development of the flavor.

## Feed Prices Again Favor Corn And Oats For Use In Dairy Rations

Cost of the ration and an adequate supply of protein are factors that should be considered by dairymen who are interested in producing efficiently. The following feed prices were quoted in the September 18 issue of the Crops and Markets report at Chicago, carload lots:

| | Cost a Ton | Cost a 100 lbs. Total Digestible Nutrients | Cost a lb. Digestible Protein |
|---|---|---|---|
| Cottonseed meal (43% Protein) | $ 36.50 | $ 2.33 | 3.5 cents |
| Old Process Oil Meal (34% Protein) | 46.50 | 2.98 | 6.1 cents |
| Wheat Bran | 24.25 | 1.99 | 5.5 cents |
| Corn, Shelled (Local price Oct. 1) | 24.29 | 1.41 | |
| Oats, (Local price Oct. 1) | 22.50 | 1.60 | |

A comparison of the cost of the various feeds indicates that corn and oats should be used as extensively as possible in the dairy ration. However, corn and oats alone do not furnish the required amount of protein. Unless this deficiency of protein is supplied by adding other feeds to the grain ration milk and butterfat production will fall off and the returns will be lowered. The dairymen growing and feeding liberal amounts of legume hay will need to buy less high protein concentrates than the dairymen with non-legume roughages.

With corn at 70 cents a bushel, choice cottonseed meal will furnish a pound of digestible protein for 3.5 cents, oil meal for 6.1 cents and wheat bran for 5.5 cents. At present prices, cottonseed meal is the cheapest source of protein.

### Grain Mixtures

| | No. 1 | No. 2 |
|---|---|---|
| When silage and legume hay are fed ---- | 500 lbs. ground corn<br>200 lbs. ground oats<br>100 lbs. cottonseed meal | 500 lbs. ground corn<br>300 lbs. ground oats<br>100 lbs. wheat bran<br>100 lbs. cottonseed meal |

| | No. 1 | No. 2 |
|---|---|---|
| When no legume hay is fed ---------- | 100 lbs. ground corn<br>100 lbs. ground oats<br>125 lbs. cottonseed meal<br>175 lbs. wheat bran | 100 lbs. ground corn<br>100 lbs. wheat bran<br>100 lbs. oil meal<br>50 lbs. cottonseed meal |

If there is no silage in the ration replace the cottonseed meal with oil meal at the rate of 150 pounds of oil meal for every 100 pounds of cottonseed meal.

| | No. 1 | No. 2 |
|---|---|---|
| When roughage consists of legumes only ---------- | 600 lbs. ground corn<br>300 lbs. ground oats<br>100 lbs. oil meal or ground soy beans | 200 lbs. ground corn<br>100 lbs. wheat bran |

These grain mixtures should be fed at the rate of 2½ pounds for each gallon of milk produced daily. The amount should be increased to 3½ pounds for Jerseys and Guernseys producing more than 25 pounds daily. -- C. S. Rhode, dairy extension specialist, College of Agriculture, U. of I.

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX | October 20, 1926 | Number 37


## U. of I. Experiment Station Publishes Another Year's Results

For the second year in succession, the experiment station of the College of Agriculture, University of Illinois has just issued a detailed annual report to give farmers of the state the new facts of interest on the 200 or more lines of work which the station is carrying on in the interests of improved farming. The report covers the thirty-eighth year in the history of the experiment station and is entitled, "A Year's Progress in Solving Some Farm Problems of Illinois."

Some 40 or more new investigations were launched during the year and a good share of these were in the field of agricultural economics and marketing, H. W. Mumford, director of the station, points out in the report. Definite studies are now being made of the marketing of soybeans, wheat, crop seed, and redtop. Farmers' grain elevators, terminal grain markets, prices of Illinois farm products and agricultural land tenure and transfer also are being studied.

In most departments of the station certain experiments were finished during the year, the report continues. In the animal husbandry department, for instance, it was found that soybean hay is not objectionable as a feed for breeding ewes and lambs, despite the doubts of some breeders and feeders on this point. Among the experiments which the dairy department finished during the year was one which showed that fat losses in buttermilk can be cut down by adding common salt and hydrochloric acid to the cream at churning time. Other experiments of equal importance and significance were concluded during the year by these and other departments of the station, according to the report.

The report has been carefully indexed and well illustrated to make it of the greatest value and interest to farmers. A copy may be obtained free by writing the college at Urbana.

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## Says Paint Sprayers Can Be Used To Advantage In Farm Painting

Spray painting machines, which have been used in the industries, are now being used to advantage on the farm, according to E. W. Lehmann, head of the farm mechanics department, College of Agriculture, University of Illinois. This method of painting is satisfactory and much more economical than when the job is done with a brush, he said. Regardless of whether a painting machine or a brush is used, a coat of paint put on at the right time will add years to the life of frame buildings. Early fall is a good time to do the job. Labor is a big item in painting a group of buildings and for this reason only good quality materials should be used. Furthermore, all surfaces to be painted should be clean and dry before the paint is put on. Thorough mixing is always desirable whether the paint used is ready mixed or mixed on the job.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## In A Wet Season Standing Corn Yields Better Seed Than Shocks

In a wet season such as the present one, farmers are likely to get more and better seed corn from standing stalks than they are from shock corn, according to results just announced on an experiment conducted by Dr. C. M. Woodworth, associate chief in plant breeding at the College of Agriculture, University of Illinois. The experiment was put under way last fall in order to make a comparison between seed corn harvested from shock and standing corn of the same variety in the same field. All seed ears were marked but left on the stalk to mature completely. Later the corn on about half the field was cut and shocked and the corn on the other half left standing. At maturity the ears on the standing stalks were harvested. About a week later the shock corn was husked.

During the winter when the seed ears were classified into three different lots on the basis of physical appearance, the ears from the standing stalks were far ahead of those from the shock corn. For instance, the number of ears that got into lot 1 was twice as large in the case of the standing corn as it was with the shock corn. Similarly, less than half of the ears from the standing corn were thrown into the third lot, while almost two-thirds of the ears from the shock corn went into this third lot.

Germination tests added further evidence on the superiority of the ears from the standing corn. In the case of the ears in the first lot, for instance, 70.6 per cent of the ears from the standing corn were given a class 1 rating, while only 36.8 per cent of the ears from the shock corn got this high a rating. To make class 1, the ears had to germinate 100 per cent strong and show no disease. Only 5.9 per cent of the ears from the standing corn were thrown into class 3, while 31.6 per cent of the ears from the shock corn went down into this class. Class 3 was for ears that were diseased and showed weak or imperfect germination and for ears that were infected with either diplodia or fusarium. In the case of the ears that were put in the second lot on the basis of their physical appearance, 57.1 per cent of the ears from the standing corn got into class 1, while only 21.6 per cent of the ears from the shock corn made this class. Similarly, none of the ears from the standing corn were so poor in germination that they went into class 3, while 54.1 per cent of the ears from the shock corn were placed in this class.

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## Final Culling Of Farm Poultry Flock Should Be Completed Soon

Many farm poultry flocks are now being culled over for the last time of the season and by the end of October the job should be finished in practically all flocks, according to Dr. L. E. Card, chief of poultry husbandry at the College of Agriculture, University of Illinois. The number of hens to weed out will depend on the number of cullings that already have been made as well as on the number of good pullets likely to be on hand when the time comes to put them in winter quarters, he said. "The best of the old hens should be carried over as a basis for a special breeding pen to be selected and put in final form about the first of January. In any good flock there also will be a number of hens worth keeping as second year layers. Only good hens can pass this test, however, since these hens must compete with pullets for a place in the flock, provided enough pullets have been raised. The difference in selling price of pullets and hens also must be considered in deciding between pullets and hens. When this difference in selling price amounts to considerably more than the probable value of the extra eggs that the pullets will lay the owner may do well to sell his pullets and keep a rather high percentage of old hens."

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## Unthreshed Grain Reflects Weaknesses In Many Threshing Rings

Signs of weaknesses in the organization of many threshing rings are seen by R. C. Ross, of the farm organization and management department, College of Agriculture, University of Illinois, in the large number of fields of wheat and oats which still remain unthreshed in central Illinois. Despite the fact that excessive rains delayed the season, some threshing rings finished their runs, while other rings in the same community failed to make the circuit and thereby caused their members heavy losses, Ross pointed out. This indicates that there are some differences worthy of note between the rings that finished and those that did not.

Overloading, which is a common cause for the failure of threshing rings during a wet season, no doubt can be blamed for some of the unthreshed fields of wheat and oats in central Illinois at the present time, in the opinion of Ross. Use of one machine on a large acreage may be economical in a good season, but it is risky if the season happens to be unfavorable, he said.

"Rings that are operating small machines can overload just as easily as those running large machines. Whether or not a ring has more than it can handle depends in part upon the amount of straw and weeds in the grain as well as upon the acreage. Machines ranging from 20 to 28 inches in width of cylinder should thresh 300 to 475 acres of grain satisfactorily, while those ranging from 32 to 44 inches may handle from 700 to 1,000 acres.

"Losses also have been caused by the fact that there sometimes is unnecessary delay in starting the run. Enough time must be allowed after cutting or following rains to let the grain dry out, but undue delay beyond this point increases the risk for those coming late in the run. Where some time passes between the cutting of wheat and oats, it usually will pay to thresh the wheat and then make a return trip for the oats. The time that is lost in the extra moving will be paid for generously by the losses that might otherwise occur in occasional wet seasons."

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## Wise Plan This Year To Breed Early For Spring Pigs, Smith Says

All indications now are that more than the usual number of sows will be bred this fall for spring pigs. Consequently, farmers who breed early and make other plans to get their spring pigs on an early market are the ones who will have the best chance of getting a good price if there should be a surplus of pigs next fall and a falling market, it is pointed out by R. A. Smith, of the swine division, College of Agriculture, University of Illinois.

"Breeding should start about November 7 if early March pigs are wanted. However, good hog men begin to make plans far in advance of this date. For one thing, breeding gilts from the pig crop of the past spring should have been selected during mid-summer and fed a growing ration rather than a fattening one. It is a mistake to delay buying the boar until time for the breeding season to start. It also is best to let the boar get accustomed to his new quarters before time for the breeding season to start and careful watch should be kept over his feed. The ration should contain a large amount of feed high in protein, such as skimmilk and tankage. Legume pasture should be used when available. Of no less importance is the feed of the sows. They should be gaining rather rapidly a short time before breeding. As in the case of the boar the ration should be relatively high in protein. Breeders and farmers are rapidly discarding the old method of letting the boar run with the sows. The thoughtful hog man realizes the importance of conserving the energy of the boar. Also he likes to have records that will show the date of farrow."

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX | October 27, 1926 | Number 38


## Rare Rats Created In Study of Hairlessness Of Animals

An entire breed of hairless rats, which, so far as is known, is the only one of its kind in existence in the world, has been created by Dr. Elmer Roberts and his associates in the animal breeding division of the College of Agriculture, University of Illinois in connection with the studies which they are making on hairlessness in farm animals and in man. The new rodent creation is about the same size as the ordinary wild rat. It is, however, devoid of any hair and when the rats are old the skin is profusely wrinkled and "flaky" looking, thus making this new kind of rat even more offensive looking than the ordinary type. One hairless rat was found more than 100 years ago and another one 75 years ago, but according to all available records the breed which has been developed here is the first and only one, according to Dr. Roberts.

History of the breed dates back only three years ago when two hairless rats, one a female and the other a male, were found at Farmington. The rats were sent to the university museum for identification and after the museum had finished with them they were given to the animal breeding division of the agricultural college. Sensing an opportunity to get new information on the problem of hairlessness in certain farm animals and in man, Dr. Roberts and his associates siezed upon the two hairless rats as a foundation for extensive studies. The hairless female failed to produce young, but more than 2,000 young have been produced as a result of the original mating of the hairless male to an ordinary albino female.

Out of these matings has come evidence which shows definitely that hairlessness as found in these rats is an hereditary characteristic and follows the Mendelian law of heredity. Three different kinds of matings, in addition to the original one, have been made in working out these facts. When the hairless male was mated to the albino female all the offspring were haired. However, when these offspring were mated together the result was three haired rats to one hairless one. Also when the offspring of the original mating were mated back to the hairless rats the resulting offspring were half hairless and half haired. Then when the hairless offspring were mated together they produced all hairless individuals.

It remains to be seen just what ramifications and final significance the studies with hairless rats may have, according to Dr. Roberts. Tests will be started soon in an effort to determine to what extent heredity is involved in certain forms of hairlessness in swine. Dr. Roberts also has located three families in Illinois, Iowa and Kansas in which hairlessness is a distinct characteristic and in one of these families the characteristic has now persisted for three generations.

News of the college's work in studying hairlessness in rats has spread to England and just recently a request was received from an English scientist wanting to know the details of the experiment.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Certain Apples Are Superior For Given Season and Taste

Housewives place themselves at the mercy of the grocer when they order apples like they order potatoes, R. S. Marsh, horticulture extension specialist of the College of Agriculture, University of Illinois, points out. It may be that a dessert apple is wanted for use in connection with a Hallowe'en event, but unless a suitable variety is designated the grocer may send an apple of inferior quality and thereby mar the festivities, he explained. There is a flavor in the different varieties of apples to fit every taste and there is a variety for every season of the year and for various ways of cooking, according to Marsh. The housewife can justly pride herself upon her ability to correctly select the proper variety of apple for right use in a given season. Furthermore, greater pleasure awaits those who intelligently buy apples by varieties, he said.

"Ben Davis is a fine variety for pie or sauce when it is used in its season of February to May, but it has little dessert value when compared with the Jonathan, Grimes, Delicious or King David in the fall or early winter. With the exception of Delicious, these last named varieties are excellent for cooking as well as for eating from the hand. However, the Delicious is a high quality dessert apple and is a favorite with people who like a mild, crisp, juicy and rather sweet apple.

"Those who like high flavored, aromatic, crisp and juicy apples will approve of Grimes Golden and Jonathan. Both of these are excellent for cooking and baking. Should one prefer an apple at this season of the year which is more tart but with the same qualities of the Jonathan he should try the variety called King David. Fameuse, or Snow, is the most juicy, crisp and spicy apple that is offered for sale during the fall season.

"After Christmas and on to May another group of varieties is on the market. Of this late group the Winesap is the outstanding variety. This apple is of medium size and has a dark red skin and a deep yellow flesh. It is excellent for eating out of the hand and is a splendid culinary apple. Another variety known as Staymen Winesap is the finest dessert apple for winter eating. It is a larger apple than the Winesap and is juicier, more crisp and rather aromatic. Willow Twig, York, Rome Beauty, Ben Davis and Gano are popular winter apples and are used chiefly in cooking. However, the Willow Twig, York and Rome Beauty are of good dessert quality and are relished by some for eating out of the hand."

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## U. of I. To Stage Bankers' Short Course November 10, 11

Illinois bankers will gather at the College of Agriculture, University of Illinois on November 10 and 11 for an agricultural short course which will stress the present financial condition of farmers, profitable soil and crop practices, improved methods of handling livestock and poultry, the building up of farm dairy herds and the value of home improvements, it is announced by H. W. Mumford, dean of the college. Marketing phases of these topics are to come in for special attention. Arranged at the request of the Illinois Bankers' Association, the course will be open to all bankers of the state. It is hoped to secure Melvin A. Traylor, Chicago, president of the American Bankers' Association, for the principal address of the course. Following the principal address at 1 o'clock on November 10, Dean Mumford will tell the bankers what the agricultural college is doing for farming in Illinois. He will stress particularly the investigations which the college is carrying on in the field of agricultural economics and marketing.

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## Natural Means Usually Best In Ventilating Immature Corn

Ventilation of corn cribs by natural means is the most practical method for most farmers to adopt in guarding against spoiled corn in a backward season such as the present one, according to E. W. Lehmann, head of the farm mechanics department of the College of Agriculture, University of Illinois. The longer corn can be left in the field to dry out the better, but if the moisture content of it is still high when it is put in the crib there is danger of spoilage unless air circulation is provided, he pointed out.

Tests which the college has made on soft corn showed that there was less damaged corn in a crib with special tile ventilators and a shaft than there was in a crib provided only with an A-shaped frame. However, there were no tile on the floor of the first crib and consequently the corn in the botton layer was damaged much more than that higher up in the crib.

There are about ten points that should be kept in mind in order to avoid spoilage in corn that is cribbed when it has a high moisture content, according to Lehmann. These are:

1. Throw out all rotten or extremely wet ears.
2. Avoid piles of silks, husks and shelled corn in the crib.
3. Store the corn only in narrow bins with slatted or open sides.
4. In bins six feet or more wide, build a central A-shaped frame or a ventilating shaft through which the air can circulate.
5. Special ventilating flues extending through the corn to the shafts are desirable.
6. Special roof ventilators connected with an A-shaped frame or ventilating shafts will help create an air draft through the corn and remove much of the moisture.
7. Poles or old rails extending through a bin of corn make possible some air circulation and will improve drying.
8. For rapid drying, forced heated air may be used. The chief objection is the expense of the equipment.
9. When forced heated air is used it should be discharged into the center of a crib with open slatted sides.
10. Drying soft corn with forced unheated air is a slow and costly process when the temperature is low and the humidity is high.

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## Illinois Beef Calf Club Members Make Impressive Showing

More than three-quarters of a million pounds of beef which brought a total of almost $100,000 has been sold through the calf club auctions on the Chicago market since January 1 by farm boys and girls who are members of baby beef calf clubs in Illinois, according to E. I. Pilchard, club specialist at the College of Agriculture, University of Illinois.

Since the first of the year the Illinois club members have sent 889 of their calves through the auction, according to Pilchard. The average weight of these beeves was 896 pounds, making the total weight 794,240 pounds, while the total selling price was $96,315.19. The best price which has been paid for a calf in the auctions up to the present time this year was brought by a Will county calf fed by Richard Hartman. It was sold early in the season and brought $15 a hundred pounds.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX November 3, 1926 Number 39


## Artificial Heat May Be Useful In Saving Seed Corn This Fall

This has been a poor fall for curing seed corn and artificial heat therefore may be a factor in saving seed which contains so much water that it might otherwise be injured, R. C. Kelleher, of the farm mechanics department, College of Agriculture, University of Illinois, says. Recent investigations by the college have shown the advantage of artificial heat in handling seed corn when weather conditions are bad, he said. At the time corn in the dent stage is picked from the standing stalks in the field it contains from 30 to 45 per cent water and until the ears are dried down to a moisture content of 15 per cent or less they are not out of danger. In warm, humid weather, so prevalent this year, there is grave danger of seed corn molding on the cob after it has been picked. If the weather should suddenly turn cold this seed corn with the high moisture content would be injured by freezing.

"It is a common practice to store seed ears in a dry, well ventilated place. During most seasons this is a satisfactory method. On the other hand, if the seed is full of water when stored and weather conditions are unfavorable for natural drying then artificial heat can be used to speed up the drying process. It is best to have the seed well dried before severe weather sets in, but the evil effects of an early cold spell on seed of high moisture content can be avoided if artificial heat is used just as soon as the cold weather starts. An ordinary stove can be used to heat the drying room. The stove should be placed so that the heat is well distributed to the seed racks or hangers. The room should be well ventilated, for the seed is very likely to be spoiled if the room is heated without ventilation. A few days of artificial heat often are enough to reduce the moisture content of the seed so that it will no longer be in danger of injury. In using artificial heat care should be taken to avoid high temperatures, as the vitality of the seed may be injured. It is a good practice to keep the temperature in the drying room below 90 degrees Fahrenheit."

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## Sweet Clover Strengthens Position As Dairy Cattle Pasture Crop

Sweet clover has strengthened its position as a dairy pasture crop in two different counties of Illinois as a result of the showing which it made in those counties during the past summer, according to reports coming to C. S. Rhode, dairy extension specialist of the College of Agriculture, University of Illinois. In Montgomery and Macoupin counties, six of the 22 dairy herds in the herd improvement association which serves that section of the state were on sweet clover pasture during the month of July, while the remaining 16 herds were on bluegrass pasture. The herds on sweet clover pasture all held their production, while one of the six even increased its production. In contrast all herds on bluegrass pasture fell off an average of 22 per cent in their milk production during the month. All the herds were fed grain.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. Mumford, *Director*.

## "Two-Cylinder" Farms Are Proving Unreliable As Profit Makers

"Two-cylinder" farms are going the way of the old twin-cylinder automobile and today the most successful farmers of the corn belt are operating "four- to six-cylinder" farms that provide for four to six important sources of income, it is shown by records which several hundred Illinois farmers have been keeping during the past few years in cooperation with the College of Agriculture, University of Illinois.

The two-cylinder farmer is the one who depends on corn and oats as his only products, it is explained by R. R. Hudelson, extension specialist of the farm organization and management department of the college. Operators of such farms are about as certain of their profits as the driver of the old two-cylinder automobile was of arriving at his destination, he pointed out.

During the period of agricultural depression those sections of the state in which the typical farm sold a variety of products such as hogs, dairy products, poultry products, wheat and possibly clover seed or soybeans, or lambs and wool have maintained a higher level of earning than those sections in which corn and oats are the chief sources of income, according to Hudelson.

Two reasons account for this, he explained. In the first place, the diversified farm suffers less when one product is selling at a loss because of abnormally low prices and in the second place the efficiency of all farm enterprises is increased by a well selected variety of farm products. Labor and power requirements are better distributed over the year keeping men and horses profitably employed through a longer season and thus reducing the cost an hour of man labor or horse power. Also livestock furnish a means of using what would otherwise be wasted by-products of the farm and soil fertility is more likely to be maintained.

"It should be remembered, however, that any farm enterprise which is inefficiently carried on or is distinctly not fitted to the particular farm is like a dead cylinder. It not only supplies no power, but also uses up the contribution of other enterprises. The modern means of detecting these dead cylinders is through the use of farm accounts. In the race toward the goal of profits, the four-cylinder farm with no dead enterprises will pass the six-cylinder farm that is missing in one or two enterprises."

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## Demonstrations Show Farm Home Improvements Are Not Expensive

Many farmers still feel that modern farm home improvements are beyond their financial means, but the farm mechanics department of the College of Agriculture, University of Illinois has just completed 20 demonstrations in nine different counties in which it was shown that a system of running water for the farm home can be started for as little as $10. If this simple unit is carefully planned and installed most all of it can be used later as a part of a real complete system, it was pointed out during the demonstrations. Special attention was paid at each of the 20 demonstrations to the construction and use of septic tanks and different types of farm water systems. In fact, 19 septic tanks were actually built in the nine counties in order to let the people see for themselves just how the two-chamber tank which is recommended by the agricultural college is built. Farm and home bureaus in Hancock, Adams, Henry, LaSalle, Bureau, Marshall, Putnam and Coles counties have made arrangements to keep one set of collapsible septic tank forms in their respective counties. By renting these collapsible forms, farmers in these counties will be able to cut the cost of building a septic tank.

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## Says Significance Of Soil Analysis Sometimes Overestimated

Increased interest in modern farming methods has led to a popular misconception as to the significance of a soil analysis, says Dr. L. H. Smith, soils authority at the College of Agriculture, University of Illinois. Many farmers have been led to believe that the chemist or at least the soils expert can take the results of a soil analysis and be able to tell just what crop should or should not be grown on the land and precisely what fertilizer material must be bought and put on the soil. A chemical analysis of the soil does, however, furnish an inventory of the total stocks of plant food elements that can possibly be drawn upon. In this way the analysis furnishes fundamental information for intelligently planning in a broad way systems of soil management that will conserve and improve the fertility of the land.

"It is true that in many cases an analysis of the soil will indicate definitely what crops should be grown and what fertilizers should be used. Take, for example, the case of a peat soil where the chemical analysis shows that the element potassium is present in very small amount. Potassium fertilizer is applied and, lo, the trick is turned. But the matter is not always as simple as this. On the other hand there are certain soils in which this same element potassium is present in amounts totalling thousands of pounds an acre and yet the application of a few pounds of potassium fertilizer will return a good profit in increased crop yields. The ordinary analysis would fail to predict this result. It should be emphasized, however, that this is a rather exceptional case mentioned for the sake of illustrating the principle.

"What is said of potassium will apply to other plant food elements as well. Thus the chemical analysis alone does not necessarily indicate what should be done to improve a soil. Much depends upon the nature of the crops grown and their ability to utilize plant food material. Much also depends upon the plant food substances themselves as to their solubility."

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## Motor Not Necessarily In Good Trim Even If It Keeps Running

In the rush of other duties, farmers should not forget about their electric motors just because these machines keep on running and do the job, F. C. Kingsley of the farm mechanics department, College of Agriculture, University of Illinois, points out. Electric motors should be given a careful inspection once every three or four months if they are to give the best service, he said.

"The bearings should be oiled frequently, but not too much, for if this is done the oil may work into the windings and thus do more damage than good. A good grade of oil such as used in the crank case of an automobile is all right for motors of one-fourth horse power and larger. For smaller motors a lighter grade of mineral oil should be used. Another important point is to see that the commutator is clean and that the brushes are pressing firmly down on the commutator bars. A dirty commutator sometimes causes excessive arcing and if left to continue will cause the commutator to become badly pitted and in some cases will short circuit a winding. This in turn may burn out the rotor windings. A coarse cloth that does not leave lint is good for cleaning the commutator. Double-O sand paper is good to polish the commutator bars and to grind in the brushes. In any case, emery paper never should be used, for it contains a metallic substance and some of this may be deposited on the commutator bars and short circuit the rotor windings.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX November 10, 1926 Number 40




## Stephenson And DuPage Dairymen Produced Milk At Loss

Eight representative farmers in DuPage and Stephenson counties who co-operated with the College of Agriculture, University of Illinois during the past year in keeping records on their milk production costs lost an average of about four cents on each 100 pounds of milk which their 135 cows produced, according to a summary which K. T. Wright, of the farm organization and management department, has just made of the records.

It cost the farmers $22,762 to keep the 135 cows during the year and in return they received $22,395. The cows produced 1,053,813 pounds of milk, or an average of 7,806 pounds each, at an average net cost of $2.18 a hundred pounds, which was about four cents more than it sold for. The average production of the cows is considered a high one. Farmers generally do not get nearly as large a yield as this and it is apparent, therefore, that many farmers were producing milk at a large loss last year, Wright pointed out.

Feed made up nearly 64 per cent of the costs, while man labor, when figured at 25 cents an hour, accounted for 18 per cent of the costs. The remaining 18 per cent was for such charges as use of buildings, interest on investment in cows, use of equipment, insurance, veterinary and the like.

Feed costs for 100 pounds of milk varied from $1 to $1.98, while the man labor costs ranged from 26 to 66 cents, which shows that some farmers could improve upon their feeding and others might reduce the amount of time they spend on their cows, Wright said. The feed cost per cow for the year averaged $108 but ranged from $85 to $147, with the production of the cows in the latter case lower than it was in the former. This again indicates great opportunities for improvement. Feed costs can be held down to the lower figure only when a well-balanced ration is fed to highly efficient cows, Wright said.

One farmer spent 114 hours on each cow during the year and another 191 hours, still the first farmer got higher production. Some farmers might reduce the time spent by changing methods used in feeding and keeping the barn clean, while others could lower the labor charge on each 100 pounds of milk produced by getting higher producing cows, Wright suggested. It takes almost as long to care for a low producing cow as a high producing one, he explained.

"Any reduction that dairymen can make in either their feed or labor bills quickly affects total milk costs, since these two items make up 82 per cent of the total cost."

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Septic Tank Becomes Nuisance If Too Small, Hanson Warns

At this time when septic tanks and other farm home improvements are getting more attention than ever in many sections of Illinois, farmers should guard against being misled by the size of tanks that are now on the market, it is pointed out by F. P. Hanson, farm mechanics extension specialist of the College of Agriculture, University of Illinois. Size is one of the most important points to keep in mind in building such a tank. Tanks that are too small cease to be useful and become only a nuisance, he said.

"Tests made by the farm mechanics department show that the two-chamber tank gives the greatest purification, provided it is made big enough and is of the proper shape. It has been found that for seven people the first chamber should be 6 feet long and 3 feet wide, while the second chamber should be 3 feet square. Both chambers should have a 4-foot depth of sewage.

"It should be mentioned that this size is recommended for seven people or less. A four-person tank may be large enough this year but next year there might be seven or possibly more people. A little extra capacity is more desirable than a small tank.

"All questions about the location of tank, size of tile and disposal bed are answered in mimeographed sheets which the farm mechanics department sends out free. A blue print showing the construction of the tank may be had for 10 cents to cover the cost of printing and mailing."

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## Snapp Points Out Pitfalls In Cattle Feeding To Bankers

No corn belt cattle feeder should put a lot of expensive feed into cheap cattle that must necessarily be sold for a low price because of inferior breeding, deficient quality and poor conformation, R.R. Snapp, assistant chief in beef cattle husbandry, pointed out in an address before the agricultural short course for bankers which was held at the College of Agriculture, University of Illinois this week.

An equally bad practice is to degrade a lot of choice, well-bred feeders into medium or common killers by failure to feed them so that they will place well toward the top of the market when they are sold, he said.

Following either of these practices will almost surely lead to financial loss brought about by using animals unsuited for the particular methods of fattening that are used, he explained.

Many factors must be taken into consideration in determining what kind of cattle are to be fed and no hard and fast rule can be laid down concerning this point, he continued. Some of the factors are the ration that is to be fed, the length of the feeding period and the probable strength of the demand in relation to the supply, both for the feeder animals and for the finished beeves.

The better grades of feeder steers should be bought for a long feed in which a liberal allowance of grain will be furnished, he recommended. On the other hand if the project is to be a short "warming up" one in which the cattle will be fed largely on silage and hay then cows, heifers or a cheap grade of steers more likely will pay, he said.

## McLaughlin Pleads With Poetry For Farm Home Conveniences

W. W. McLaughlin, LaSalle county farm adviser, who appeared on the program of the Chicago district conference of farm advisers to tell how he had handled the home equipment extension project in his county, concluded a good report with the following:

IRRIGATE YOUR EDEN

Believe me if all those endearing young charms
Possessed by your fair spouse
Are going to stay you'll have to pay
For water in the house.
There's a long, long trail a winding
Down to the farm yard pump,
And if you make her travel it
You are a selfish chump.
Drink to me only with thine eyes
Is very fine to sing,
But in the use of household juice
It doesn't mean a thing.
To hew the wood that cooks the food
And then to tote the water
It is not fair to make the share
Of mother, wife or daughter.
O, in the Swanee River
And between the Wabash banks
A lot of water runs to waste
That we might store in tanks,
While many wives have up and died
And others wanted to,
Because they had no pipes of lead
With water gurgling through.
Silver threads among the gold
The passing years will send
Don't hasten them -- have iron pipes
With spigots in the end.

-- Bob Adams

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## Many Farmers Again Report On Swine Sanitation Benefits

With the fall market for spring pigs now in full swing, farmers are flooding E. T. Robbins, livestock extension specialist of the College of Agriculture, University of Illinois, with reports of the benefits they have realized by raising these pigs under the swine sanitation system advocated by the college. The system this year was demonstrated by 1,202 farmers in 74 counties who cooperated with their county farm advisers and the agricultural college in showing their neighbors the merits of the plan. The system is designed to stop pig losses from round worms and necrotic infection by protecting the young porkers from becoming infested with the worm eggs until the pigs are at least four months old.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX November 17, 1926 Number 41


## Dr. Lloyd Tells Bankers Fruit Marketing Costs Are Out Of Line

Fixed marketing charges and the margins of retailers are now so great that in years of a heavy fruit crop the grower receives such a low price that his total income from the large crop is likely to be less than from a small crop, Dr. J. W. Lloyd, chief in olericulture at the College of Agriculture, University of Illinois, explained to Illinois bankers in addressing them at the recent bankers' agricultural short course held at the college.

As remedies for this situation he recommended that freight rates be made subject to change from year to year depending upon the volume of the fruit crop, that retailers handle large volumes of fruit on a small margin per unit and that cartage charges for hauling fruit from the car track to the store of the wholesale dealer be reduced.

"Transportation charges represent too large a percentage of the price of fruits delivered at wholesale markets. Freight rates are supposed to be based largely upon the value of the service to the shippers, but the transportation of a bushel of apples is not worth as much to the shipper when those apples sell in the terminal market for 75 cents a bushel as when they sell for $2.

"Since wholesale prices in terminal markets bear a fairly close relation to volume of production, freight rates for a given season could readily be adjusted in advance of the crop movement by using the government crop estimates as a basis. Associations of bankers could exert a definite influence upon the Interstate Commerce Commission in bringing about such a system of adjusting freight rates if they cared to interest themselves in the matter."

"Retailers are largely responsible for thwarting the normal operation of the law of supply and demand in reference to fruits in years of heavy crop, since they are likely to exact even wider margins per unit in years of heavy crops than in years of light crops and their tendency always is to take wider margins on fruit than on many other commodities they handle.

"Bankers, through chambers of commerce, could render a valuable service to consumers and to orchardists by giving sound business advice to retailers regarding the relative merits of handling small volumes of fruit on wide margins per unit and handling large volumes of fruit on small margins per unit, in terms of service to the community and fairness to the producer.

"Another fixed charge in the marketing of fruit that is out of all proportion to the service rendered is the cartage charge in some cities for hauling fruit from the car track to the store of the wholesale dealer. This is a flat rate per package and sometimes amounts to more than half as much as the freight. Bankers might well interest themselves in reducing this expenditure of money that might otherwise go to the fruit grower and assist him in paying interest on his investment."

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director.*

## Alfalfa Pointers To Be Shown In College's International Exhibit

That alfalfa, the most popular legume among Illinois farmers, pays a profit of $1.50 on each $1 of costs will be shown along with other alfalfa facts and hints in the educational exhibit which the College of Agriculture, University of Illinois will make at the coming Chicago International Livestock Exposition. The figures on costs and profits will be taken from records which the college has obtained on 469 acres of alfalfa grown in Warren and Knox counties during the three years of 1923 to 1925, inclusive.

Among other things the exhibit will point out the necessity of testing the soil before alfalfa is sown and of applying limestone if the land is found to be acid. Representative figures will be presented to show that acid soil produced 1.57 tons of alfalfa an acre, while sweet soil produced 2.39 tons. Figures also will be presented to show that inoculation of alfalfa land increases the yield, enriches the soil and improves the quality of the hay which is produced, while another section of the exhibit will show that northern grown native alfalfa seed did best in tests which the college has conducted both at Urbana, in central Illinois, and at DeKalb, in northern Illinois. Another section of the exhibit which will be devoted to the handling of the alfalfa crop will show that cultivation does not pay, that the time of cutting alfalfa hay is important, that thorough preparation of the seed bed makes cultivation unnecessary and that the one-tenth bloom stage has proved to be the best time to cut alfalfa in this state.

Alfalfa insects are not serious, it will be shown in another part of the exhibit, while other sections of the display will carry a warning against bacterial wilt, a serious alfalfa disease, and show farmers how to control it. The rest of the exhibit will be devoted to showing that more beef can be produced on the same acreage when alfalfa is grown on part of that acreage. The display will show that four acres of corn costing $129.78 produces 202.2 bushels of corn which will make 1,123 pounds of beef. In contrast three acres of corn and one acre of alfalfa costing $113.85 produces 151.6 bushels of corn and 2.71 tons of alfalfa which will make 1,231 pounds of beef.

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## Farmers Can Save $15 On Meat Of One Hog By Doing Own Butchering

By butchering their own hogs, farmers this year can save $15.57 on what the meat of each hog would cost them if bought at retail prices, according to figures worked out by Sleeter Bull, chief of the meats division of the College of Agriculture, University of Illinois. The saving, which does not allow for the farmer's labor, curing materials or any overhead charges, is for a 225 pound hog worth 12 cents a pound on the farm. Farmers frequently raise the question as to whether they shall slaughter hogs for their own pork or sell the hogs and buy the meat from the butcher.

The saving of $15.57 does not mean that the packer or retail butcher is making an unreasonable profit, Bull pointed out. The saving simply means that the farmer may get all the costs and profits that are involved in shipping to market, dressing the hog, grinding the sausage, rendering the lard, curing the meat and selling the pork. Home butchering is simply an opportunity for the farmer to utilize his own labor satisfactorily at a time of the year when he is not particularly busy. Bull's figures show that the consumer pays the retailer $42.57 for the products of a 225 pound hog. At the rate of 12 cents a pound this hog when alive would be worth $27.

Directions for the dressing, cutting and curing of pork may be obtained by writing the agricultural college.

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## Urbana Showing Best One For Rock Phosphate On 1926 Illinois Wheat

The best showing which rock phosphate made this past year as a fertilizer for Illinois wheat was made on the experimental plots which the College of Agriculture, University of Illinois maintains at Urbana, it is announced by H. J. Snider, assistant chief of soil experiment fields. On these plots the use of rock phosphate in combination with residues, sweet clover and limestone boosted the yield of wheat 11.4 bushels an acre over what it was on land that was treated only with residues, sweet clover and limestone. The past season was favorable to wheat and the yields on cornbelt land were encouraging, according to Snider.

On the Urbana plots, where rock phosphate made its best showing, the land which was treated with residues, sweet clover and limestone yielded 44.3 bushels an acre, but when rock phosphate was used in addition the yield jumped to 55.7 bushels an acre. Results which were a close second to these were obtained on the Joliet soil experiment field where an increase of 11.2 bushels of wheat an acre was obtained as a result of the use of rock phosphate. On this field the use of the residues, sweet clover and limestone treatment gave a yield of 24.3 bushels of wheat an acre, while the addition of rock phosphate to the soil treatment increased the yield to 35.5 bushels an acre.

On four central Illinois experiment fields located at Urbana, Sidell, Clayton and Hartsburg, land that was treated only with crop residues averaged 28.6 bushels an acre. The residues were mainly cornstalks. When limestone and sweet clover were used in addition to the residues, the yield averaged 36.2 bushels an acre, or 7.6 bushels more than it did from residues alone. When rock phosphate was used in combination with all these other treatments, the wheat yields on these four fields averaged 43 bushels an acre, or 14.4 bushels more than they did from residues alone and 6.3 bushels more than they did from a combination of residues, limestone and sweet clover.

Experiment fields in northern Illinois showed somewhat higher wheat yields than those of central Illinois. Wheat yields on five of these northern Illinois experiment fields located at Kewanee, Aledo, Mt. Morris, Joliet and Dixon, averaged 37.5 bushels an acre when the land was treated only with residues. Under the limestone and sweet clover treatment, the yields averaged 43 bushels an acre and when rock phosphate was used in addition to the residues, limestone and sweet clover the yield went up to 48.6 bushels an acre.

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## Fall Pigs Are As Reliable As Spring Ones Under Good Methods

Many farmers have more trouble in successfully growing out fall pigs than they do spring pigs, but cost account figures show that when a good ration is used fall pigs can be grown and fattened as cheaply as can spring pigs, says W. E. Carroll, chief in swine husbandry at the College of Agriculture, University of Illinois. Some of the failures with fall pigs can be accounted for by the fact that the pigs get such a late start that cold weather is upon them before they are old enough to withstand the hardship. Other failures with fall pigs can be traced to the use of an incomplete growing ration, Carroll explained.

"A good mixture for growing and fattening market pigs is composed of 2 parts tankage, 1 part linseed oil meal and 1 part alfalfa meal or chopped alfalfa hay. This is fed free choice with yellow corn. Upon such a ration, healthy, worm-free pigs should gain to a weight of 200 pounds by the time they are six months old."

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX November 24, 1926 Number 42

## College Picks 79 Animals To Uphold U. of I. Record At International

Seventy-nine head of livestock, the pick of the herds and flocks at the College of Agriculture, University of Illinois, are being groomed to uphold the good record which stock from the college made last year at the Chicago International Livestock Exposition. At the exposition this year the college animals will be entered in competition with approximately 11,000 head of stock which will be shown in a total of 900 different classes by the leading breeders and agricultural colleges of the country. There will be $100,000 in cash prizes and numerous trophies at stake. It is the policy of the Illinois agricultural college to show only livestock which has been bred and developed by the institution and consequently the animals which are sent from the institution to the International will be strictly products of the methods which are followed on the college farm.

Included in the 79 head of stock which the college will send to the show will be 40 barrows, 32 sheep and 7 steers. The 40 hogs will include 3 Chester Whites, 19 Duroc Jerseys, 12 Hampshires and 6 Poland Chinas. Entries have been made not only in the individual classes but also in the pen classes. The sheep entries include 11 Shropshires, 10 Rambouillets, 5 Southdowns, 5 Hampshires and 1 Oxford, while the steer entries include 4 Herefords, 2 Angus and 1 Shorthorn. The great grand sire of the Duroc Jersey barrows which the college will show at the International this year is the grand sire of "Red Grange", the college's champion Duroc Jersey barrow of the show last year.

Last year the Illinois agricultural college took next to the top honor of the show when Laddie Fairfax, a Hereford steer calf, was made the reserve grand-champion fat steer of the exposition. This same animal also was selected as the champion Hereford steer and the champion steer calf of all breeds. Other major awards which the college won at the 1925 International included the championship on pen of Duroc Jersey barrows, the championship on single Duroc Jersey barrows, the reserve championship on Oxford ram and the reserve championship on Rambouillet ewe. In addition a number of lesser awards were captured by the college livestock.

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## Twenty-Nine Farm Youngsters Compose Illinois Delegation To Chicago

Twenty-nine Illinois farm youngsters, including 16 boys and 13 girls, all of whom are state champions in their respective lines of farm boys' and girls' club work, have drawn the honor of composing Illinois' delegation to the fifth annual boys' and girls' club congress, which gets under way Monday morning in connection with the International Livestock Exposition at Chicago, according to an announcement by club leaders at the College of Agriculture, University of Illinois. More than 1,000 members of farm boys' and girls' clubs from all sections of the United States are expected to attend the congress and the members of the Illinois delegation will brush elbows with these other club members in contests, sight seeing trips and demonstrations.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Herd Owners To Work Out Own Problems At Dairy Cattle Feeding Schools

Something new in the way of farm instruction will be offered to Illinois farmers during the coming winter in the form of dairy cattle feeding schools which the extension service of the College of Agriculture, University of Illinois will stage in 45 counties of the state. Farmers who attend will be asked to bring pencils and paper so that they can take notes and work out some of their own feeding problems. The series of schools has just been started under direction of C. S. Rhode, dairy extension specialist.

Efficient feeding, a necessity if profitable results are to be obtained from the dairy herd, will be stressed at the schools. The problem is not a complex one, for on most Illinois farms efficient feeding merely calls for an extensive use of home grown feeds and under most conditions it is necessary for the farmer to buy only a small amount of high protein feed such as cottonseed meal or linseed oil meal, Rhode expalined.

Counties in which schools will be held during the series include Schuyler, Brown, McDonough, Fulton, Peoria, Knox, Stephenson, Boone, Bond, Madison, St. Clair, Randolph, White, Saline, Gallatin, Coles, Cumberland, Morgan, Scott, Pike, Whiteside, Lee, Ogle, LaSalle, Grundy, Iroquois, Kankakee, Montgomery, Macoupin, Cass, Clinton, Marion, Lawrence, Wabash, Edwards, Jefferson, McLean, Logan, Sangamon, Moultrie, Shelby, Ford, Vermilion, Woodford, and Henry.

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## Rooster Should Be Bought With As Much Care As Other Breeding Stock

Just as much care should be exercised in buying roosters as in buying any other male breeding stock that the farmer uses, and to this end there are four points that should be watched, says H. H. Alp, poultry extension specialist at the College of Agriculture, University of Illinois. The rooster that is bought should be representative of his breed and variety, he should show strength and vitality, the price should be right and he should be bought from a reliable poultryman, Alp said.

"These four points are good guides in making a wise choice of roosters and one cannot watch them too closely.

"The good poultryman does not wish to use a rooster that is not true to type and for this reason it is important to make sure that the bird which is selected is representative of his breed and type.

"In the second place, he must have vitality and strength which are shown by a clean cut head, a snappy look in the eye, a broad back and a deep body. He should stand squarely on his feet.

"The price to pay will be determined largely by just how good a bird is wanted. There are plenty of good, medium-priced males to be had, quite often near at hand. The thing to do is to look around first in the neighborhood. If some one in the community is getting results, it stands to reason he is using systematic breeding plans, as breeding is as essential to success as good management and care.

"Disappointment often can be avoided if the rooster is selected and ordered early."

## Three Corn Germination Schools Again Planned To Aid Disease Control

Three corn germination schools, designed to aid farmers in saving the millions of dollars that are now being lost annually in the cornfields of the state because of corn diseases, will be held at the College of Agriculture, University of Illinois during the coming few months, it is announced by J.C. Hackleman, crops extension specialist. The first school of the series will be held December 13 to 17, inclusive, the second during the week of February 7, 1927, and the third during the week of February 14. Three similar schools were held at the college for the first time last year.

Each of the schools will include instruction in the handling of homemade seed corn germinators, the reading of germinated corn for signs of vitality and diseases and a detailed study of each of the important corn diseases. There will be two lectures and two laboratory periods on each of the five days of each school. Instructors at the schools will include Dr. G. H. Dungan, assistant chief of crop production; Dr. Benjamin Koehler, associate chief of crop pathology; Dr. C. M. Woodworth, chief of plant breeding, and Prof. Hackleman.

Because of the limited facilities for laboratory work, the enrollment for each of the schools will be limited to 36, but in practically all cases these 36 farmers will be men who are acting as local leaders of the college's corn improvement project back in their home communities. After receiving the course of instruction they therefore will go back and assist their farm advisers in acquainting other farmers and local leaders with what they learned at the school.

Applications for enrollment in the first school already are on file from McLean, Hancock, Ford, Ogle and several other counties. In view of the continued research work on corn diseases, both at the college and at Bloomington, where the federal government is in charge, much new information is available and will be included in the course, Prof. Hackleman said. As a result many of the project leaders who attended one of the three corn germination schools last year are anxious to come back this year to get the latest facts, he added.

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## Twenty-eight Cows Make Early Claim To Honors In 500 Pound Fat Club

Twenty-eight Illinois dairy cows belonging to 18 different dairymen in 10 counties of the state already have won a gold medal for their owners and gained a membership in the Illinois 500 Pound Butterfat Cow Club by producing a quarter ton of butterfat in the year allowed them under the regulations of the club, it is announced by C. S. Rhode, dairy extension specialist of the College of Agriculture, University of Illinois, who has charge of the club.

These 28 cows came under the wire with two months of their allotted year to spare, according to Rhode. Fifty other cows, which already have produced 425 or more pounds of butterfat during the first ten months, are conceded a chance to win a membership in the club during the remaining two months.

"It is a worthy achievement for a dairyman to get a production of 500 or more pounds of butterfat out of one or more of his cows in a year, let alone 10 months," Rhode said in commenting on the records of the 28 cows. "In so doing these dairymen have carried out the purpose of the club which is to demonstrate that good cows, good feeding and careful management are necessary if the best results are secured on the average Illinois dairy farms."

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX December 1, 1926 Number 43

## Thirty-Ninth Report Of Experiment Station Covers 200 Projects

A detailed accounting of the progress which the experiment station of the College of Agriculture, University of Illinois made during the thirty-ninth year of its history in working out the facts on some 200 farm projects is contained in the annual report of H. W. Mumford, director of the station, which is soon to be issued to farmers and other interested persons. This is the third annual report of its kind to be issued by the Illinois station and covers the year ended June 30, 1926. Eight different departments contributed toward the report. The range of subjects discussed extends from alfalfa to watermelons. Progress of some kind is shown for practically all of the many lines of work. By way of carrying out the provisions of the recently enacted Purnell act, the Illinois station supported 20 projects on Purnell funds, Director Mumford points out.



One of the numerous project reports made by the agronomy department, for instance, shows that up to the close of the past season 95 of the 102 counties of the state had been covered in the state soil survey which is being made for the purpose of classifying and mapping all soils of Illinois to the end that farmers may be given reliable information on the fertilization and management of their land. The discovery of four seed-treatment compounds which show promise for the control of corn rot, the finding of several new types of soil, the development of a new high yielding soybean and scores of other soil and crop studies and tests are reported. The animal husbandry department reports one investigation in which it was found that a sow's gaining power is not inherited by her litters, while another test brought out the fact that the oil in soybeans is the cause of the soft pork which results when this crop is fed to hogs. Another of the many animal husbandry studies which are reported showed that calves are not immune to the avian, or fowl, type of tuberculosis.

A score or more of project reports are given to show the progress that has been made during the year in working out the problems of milk production and dairy manufacturing. The report of the farm organization and management department features the first year's results from the farm bureau-farm management service project in which 239 farmers of Livingston, McLean, Tazewell and Woodford counties are participating in a cooperative farm management and farm accounting undertaking. The slump in Illinois farm profits during 1925 also is discussed in detail by this department. Investigators in the agricultural economics department report on studies which show the rise and fall of farm grain prices, the location of the different wheat areas of the state, the scope of the seed marketing business in Illinois and the extent of land tenure problems.

Use of electricity on the farm and the extensive investigations which the experiment station is making in this field are featured by the farm mechanics department. The development of new varieties of fruits, new results in the field of orchard fertilization, extensive vegetable experiments and studies dealing with some of the problems of commercial floriculture are stressed by the horticulture department.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Farm Accounting Will Pay Well For The Time And Effort It Requires

The farmer who does not keep pace with the rapid shift of economic conditions will, like any other business man, fall behind in the competition for his share of the world's goods. Accounting is the modern means of knowing where a business is headed and how fast it is going. Only the most progressive farmers have acted on these facts and actually adopted a system of accounts for their farms. Among the reasons for this situation are the belief that keeping accounts will not pay the farmer and that it requires more education and more time than the average farmer can give to it.

That accounting does pay is evidently the belief of a group of Woodford County farmers who decided to pay for additional service along this line after they had the free service of the College of Agriculture, University of Illinois extension men for nine years. Another bit of evidence that accounting pays is contained in the fact that a group of men who had been keeping farm accounts for seven years were found to be profiting by an average of $655 a year. This is good pay for a task that requires so little time, especially when it is considered that for 1925 the average labor and management wage of 1,048 Illinois farmers keeping accounts was only $355.

As to the time and educational requirements in keeping accounts these need not keep any farm operator from adopting an accounting system. The task does not require more than five or ten minutes a day on the average and few account keeping farmers find it necessary to do much accounting when they are working hardest in the field. At such times there are few business transactions made. Any man who has had an ordinary grade school education can keep farm accounts according to the Illinois extension service plan. Eleven hundred Illinois farmers did complete their accounts for 1925.

Young men just getting started in farming will find the greatest profit in keeping accounts because they have usually had less business experience, they will have a longer time to use the knowledge gained in analyzing their own business and they find it easier to form the systematic habit of keeping up their accounts. The first step in getting started at account keeping for most Illinois farmers is to enroll through the county farm adviser in the Illinois farm accounting project. In this way books and complete instructions will be supplied, as well as service in analyzing the business at the end of the year. -- R.R. Hudelson, farm organization and management extension specialist, College of Agriculture, U. of I.

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## Program For 1927 Farmers' Week At U. Of I. To Have Broad Scope

Plans for the coming Farmers' Week at the College of Agriculture, University of Illinois are being framed with a view to showing farmers the inter-relation of production and marketing and giving them a world-wide viewpoint on agriculture, it is announced by H. W. Mumford, dean of the college. The European corn borer, which has advanced to within 75 miles of the Illinois line, also will have a prominent place on the program. Dates for the event are January 17 to 22, 1927.

Prominent speakers who have been scheduled to carry out the main themes of the week include Dan T. Gray, dean of the College of Agriculture, University of Arkansas, Fayetteville; Melvin A. Traylor, president of the American Bankers' Association, Chicago; Lloyd C. Tenny, acting chief of the bureau of agricultural economics in the federal department of agriculture; L. G. Michael and C. J. Galpin, also of the bureau of agricultural economics, and Lorado Taft, Chicago.

## Corn Diseases Cost Illinois Farmers $47,861,977 During 1926

Illinois farmers this year paid a toll of $47,861,977 to corn diseases, according to Prof. J. C. Hackleman, crops extension specialist of the College of Agriculture, University of Illinois. This sum represents the labor which was expended on 1,782,569 corn producing acres which were rendered unproductive by the diseases, he said.

The figures are based on a large number of corn germination tests which crop specialists of the college made last spring and which indicated that 16 per cent of the 1926 crop would be lost because of the root, stalk, ear and cob rot diseases of corn. Some of these same diseases have probably blocked the progress of the corn improvement from the time of the earliest breeders, according to Prof. Hackleman.

"The loss probably has been more than the estimated 16 per cent, because of the unprecedented fall rains, but if it was only 16 per cent the total reduction would be 60,248,000 bushels, since the crop now standing in Illinois fields is estimated at 316,317,000 bushels.

"Figured at an average yield of 33.8 bushels an acre, this 60 odd million bushels of corn represents 1,782,569 vacant corn producing acres. It costs about $26.85 an acre to raise a corn crop ready for harvest, according to 1925 figures for central Illinois."

These same corn diseases were probably the cause of disappointments which early breeders met in their efforts to improve this crop, according to Prof. Hackleman. Frequently these early breeders found that the ideal ear was disappointing as a parent, probably because of its susceptibility to one or more of these diseases, he said.

"Many times a sample which was placed first in a corn show proved to be inferior to a very ordinary looking sample when the two were tested out in the field. While inheritance, or breeding, undoubtedly was a great factor, the variation in performance of ears of the same breeding is thought to have been in part, at least, due to these diseases.

"In seeking the cause for this, investigators at the experiment station of the Illinois agricultural college and others found a whole group of fungus and bacterial diseases of corn. It is now recognized that the root, stalk, ear and cob rot diseases of corn are one of the greatest stumbling blocks in the way of more efficient corn production. The next advance was the discovery that there was a correlation between ear characters and the prevalence and kind of disease."

With these facts as a background, Prof. Hackleman, working in cooperation with other investigators of the agricultural college and the federal department of agriculture, in 1921 set up a score card which placed the emphasis on those corn characters which had been found to forecast field production. This score card is now known as the score card for utility type corn and this type has rapidly become the standard in Illinois.

Two years ago the college summarized its seven years of research work on corn disease problems in the form of Bulletin 255 and this bulletin immediately became the text book from which Illinois farmers were to get their information regarding corn production, Prof. Hackleman said.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX December 8, 1926 Number 44


## Big Alfalfa Yields On Davenport Plots Due To Six Factors

Alfalfa on the Davenport plots of the College of Agriculture, University of Illinois has been made to produce what is considered a big hay yield by strict attention to a half dozen points which are essential for the successful growing of this crop, according to F. W. Gault, of the college agronomy department. Last year, the most recent one that alfalfa has been grown on the plots, the yield was boosted from 1.8 tons of hay up to 4.5 tons of high quality hay an acre.

In all probability similar yields could be obtained oncorn-belt farms if more attention was given to the six points, in the opinion of Gault. The six points include a sweet soil, fertile land, good drainage, a well-prepared seed bed, good seed and thorough inoculation.

"Land which grows alfalfa successfully most naturally has a large supply of lime in it or else enough limestone must be put on to sweeten the soil. The land which produced the 4.5 tons of alfalfa hay an acre was heavily limed. When it comes to fertility of the soil, manure, sweet clover plowed under, and phosphate aid a whole lot in the growth of alfalfa. The land which produced the big yield on the Davenport plots had manure, lime and phosphate put on it. Rock phosphate and bone phosphate proved about equally good. The land on the plots also was thoroughly tiled.

"In preparing a good seed bed for alfalfa the land should be worked down thoroughly so as to kill weeds and furnish a fine, firm soil for the germination of the alfalfa seed. Northern grown seed has proved to be the best. The northern strains are winter hardy and less susceptible to disease. The rate of seeding may vary from 12 to 15 pounds an acre. Proper inoculation may be obtained by using soil which is known to carry alfalfa or sweet clover inoculation or by getting good reliable commercial cultures. It is not best to cut alfalfa during its first year's growth. Furthermore, when alfalfa is cut for hay the cuttings should be made when about one-tenth of the alfalfa is in bloom. The last cutting in the fall should not be made too late. There should be time after the last cutting to allow a growth of six to eight inches to develop."

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## Dairyman Cuts Feed Bill A Fifth By Using Home Grown Ration

Home grown feeds which he substituted for a ready prepared dairy ration cut one Will County dairyman's feed bill 20 per cent and at the same time increased the production of his cows 11 per cent, according to a report sent to the College of Agriculture, University of Illinois by Harold Haines, tester for the county dairy herd improvement association of which the dairyman was a member. Profits from the herd were increased nearly 48 per cent as a consequence of the change, Haines reported. The home grown ration which was substituted for the ready prepared feed was composed of a mixture of ground oats, ground corn and cob meal and linseed oil meal.


Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Grape Pests In Neglected Vineyards Destroy Crop Profits

Although the price level for Illinois grapes this year was somewhat below what it was last year, clean, well-grown fruit of good quality, attractively packed, sold at a good profit to growers who paid some attention to marketing, A. S. Colby, associate chief of pomology at the College of Agriculture, University of Illinois, says. Profitable crops, however, were not harvested in vineyards that were not properly cared for, he added.

"In such vineyards the control of insects and diseases through spraying, clean culture and sanitation was a highly important need during the growing season just closed.

"Grape leaf hoppers were especially abundant this season. They make the leaves dry up and die early, thus sapping the vigor of the vine and lowering the quality of the fruit. If leaf hoppers are to be controlled it is necessary to burn headlands, fence corners and other waste places near the vineyards where the leaf hoppers hibernate. This burning should be done at once.

"A further precaution is the growing of a vineyard cover crop which stays green throughout the dormant season. This is important, since the hoppers hibernate in the weeds and grasses which die in the fall. The planting of raspberries and strawberries near grapes should be avoided when possible since the hoppers feed upon the leaves of these plants before the grape leaves expand in the spring. Last, but most important in hopper control, is the application of a contact spray, such as nicotine sulphate. The spray must touch the body of each insect and therefore must be put on before the nymph develops wings.

"The grape root worm this year has weakened many grape vines, especially of susceptible varieties like Niagara. Planting resistant varieties is one way to control this pest and another way is to spray with arsenate of lead sweetened with molasses to kill the beetles before they lay their eggs. Cultivation to kill the immature beetles also helps.

"The grape berry moth, phylloxera, which is a tiny root louse, and black rot and the mildews are other vineyard pests which must be given more attention another year if the most profitable crops are harvested.

The grape berry moth is easily controlled in a small vineyard by picking off and burning the infested berries in early fall. Since the insect passes the winter in an immature stage on leaves beneath the vines, the leaves either should be raked up and burned or plowed under deeply, early in the spring. Spraying with arsenate of lead just after the fruit sets also is advisable.

"The planting of resistant varieties is at present the only practicable method of controlling phylloxera. It is fortunate that most of our commercial grapes do not seem to be susceptible.

"In the control of most fungous diseases it is desirable to choose resistant varieties, plant them in a suitable location on a site allowing for air and water drainage, practice clean cultivation with a cover crop, remove diseased fruit, leaves and wood when noticed and follow a complete spray schedule. Such a schedule should provide for at least two sprays of bordeaux mixture each season."

## Septic Tank Costs Reduced By Use Of Collapsible Forms

Farmers who have installed the U. of I. two-chamber septic tank as part of a system of home conveniences have been able to save from $10 to $15 on the cost of the tank installation by using collapsible forms rather than the ordinary ones, according to F.P. Hanson, farm mechanics extension specialist of the College of Agriculture, University of Illinois.

The tank is the same size regardless of whether the form is collapsible or not, for the saving comes in using the same form a good many times. Collapsible forms have been used as many as 25 times, and with any care at all they should last for at least ten times, Hanson said.

Collapsible septic tank forms may now be secured from farm and home bureaus in eight Illinois counties, including Hancock, Adams, Henry, Bureau, LaSalle, Coles, Marshall and Putnam. Because of the interest in the use of septic tanks instead of cesspools for sewage disposal, the number of counties having forms available for a reasonable rental charge is expected to increase, Hanson pointed out.

"Another advantage of the collapsible forms is that the user does not need to worry and spend time looking for plans and recommendations regarding the size, shape and capacity of tanks, as well as details for building the forms. When the form is rented all this worry and lost time is done away with.

"Farmers interested in farm sewage disposal would do well to consider first the advantages of the septic tank over the cesspool and then find out if a collapsible form can be secured. If one is not available in the county it often will pay to build the collapsible form with the good chance of renting or selling it to another person. Of course, the more the form is used the less the cost to each user."

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## Different Whitewash Recommended For Old And New Surfaces

Whitewash, long a substitute for paint in brightening up farm buildings, should be made of slightly different proportions of ingredients for new surfaces than for old surfaces, according to E.W. Lehmann, head of the farm mechanics department, College of Agriculture, University of Illinois.

"A whitewash formula that is recommended as being very satisfactory for new surfaces is as follows: 2½ gallons of finishing lime, 2 gallons of white Atlas cement, 2½ pounds of sal soda, 2 pounds of table salt and 3 pounds of powdered alum. These should be mixed dry and then enough cold water added to make five gallons of the wash.

"For old surfaces a good mixture can be made from 2½ gallons of finishing lime, 2½ gallons of white Atlas cement, 1 pound of sal soda, 1 pound of table salt and 3 pounds of powdered alum. As in the case of the other formula, these ingredients should be mixed dry and then enough water added to make five gallons of the wash. This wash should be applied in the usual way after the loose particles and scales have been cleaned off.

"The caution that should be kept in mind in whitewashing is to be sure that the surface on which the wash is applied is entirely clean before the application is made."

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Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume IX December 15, 1926 Number 45


## Dean Mumford Cites Practical Value Of Farmers' Week Program

Seldom, if ever, have conditions surrounding corn belt farming made it more necessary for farmers to consider every detail of their business in order to increase their net income by decreasing their costs of operation and by recognizing more fully the importance of marketing, H. W. Mumford, dean of the College of Agriculture, University of Illinois, said in his announcement of the program for the annual Farmers' Week at the college, January 17 to 22, 1927.

Seven sectional or group meetings featuring work in soils and crops, animal husbandry, dairy husbandry, farm organization and management, farm mechanics, horticulture, and bee keeping will be held on each of the five days of the week. These sectional meetings will run until 3 o'clock each afternoon at which time a general meeting will be held with some topic of general interest to farmers as the attraction.



Lessons which corn belt farmers may learn from the cotton belt, the European corn borer, East and South Africa as possible agricultural competitors and agricultural surpluses and the tariff, are among the topics which will come up for discussion at four of these general sessions. The fifth will be given over to an inspection of the annual utility corn show.

Speakers for these afternoon general sessions include Dan T. Gray, Dean of the College of Agriculture, University of Arkansas, Fayetteville; H. L. Shantz, Head of the Botany Department of the University of Illinois, who served on a committee of technical advisers which prepared data for the U. S. Commission which took part in the negotiations for peace at the end of the war; D. J. Caffrey, in charge of research work on the European corn borer for the Federal Department of Agriculture, and Henry C. Taylor of the institute for research in land economics and public utilities at Northwestern University, Evanston, Illinois.

There will be five evening sessions, three of which will be given over to addresses by prominent speakers, another to a horse show and pulling contest and another to the annual farmers' banquet. The addresses scheduled for the three night sessions are, "European Debts and the Farm Situation," by Melvin C. Traylor, President of the American Bankers' Association, Chicago; "What is Right with the Farm Home," by Miss Lita Bane, Madison, Wisconsin, President of the American Home Economics Association, and "An Hour in the Sculptor's Studio," by Lorado Taft of Chicago and recognized as one of America's best known sculptors.

Side attractions in addition to the corn show, the horse show and pulling contest and the farmers' banquet include a "Little International" to be staged by students of the college using blooded stock from the college farm and the annual meeting of the Illinois Crop Improvement Association.

Railroads of the state in the Western and Central Passenger Associations have granted reduced rates of one and one-half fare for the round trip to Farmers' Week visitors, Dean Mumford announced.


Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Additional Soybean Uses Are Sought In New Cattle Feeding Tests

Further tests designed to develop possible new uses for soybeans, a crop which Illinois farmers have been producing in increasing amounts during the past few years, have been put under way at the College of Agriculture, University of Illinois with the arrival of two carloads of Hereford beef calves from southwestern Texas. The 90 calves will be divided into five lots and used in studying the relative values of soybeans and soybean oil meal in comparison with cottonseed meal and linseed oil meal as protein supplements in the ration of fattening beef cattle. Extensive experiments already have been made by the college on the value of soybeans and soybean products in lamb feeding while other studies have been made on the merits of soybean products in the feeding of draft horses.

The experiment which has just been put under way today is the first one to be conducted in the new beef cattle feeding plant of the agricultural college. Kokernot ranch, the owners of which are said to be the largest individual holders in the United States, furnished the calves for the experiment. Bought at Texas weights with a 3 per cent shrink, the calves cost 8½ cents a pound and were bought through the Producers' Calf pool. When bought in Texas the calves weighed 391 pounds and when taken off the cars here at the end of a 10-day trip they weighed an average of 342 pounds without feed or water.

After the feeding experiment is concluded one of the soybean lots and one of the cottonseed meal lots will be used in Illinois' part of a beef slaughter test which 32 state experiment stations are conducting in cooperation with the federal department of agriculture. The animals in these two lots will be graded when they go on feed and again when they come off feed and the steers then slaughtered and their carcasses graded. The committee of three which will do this grading is composed of A. T. Edinger, of the federal bureau of animal industry; F. G. King, Purdue University, Lafayette, Ind., and D. J. Slater, of the federal bureau of agricultural economics.

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## First Corn School Brings Project Leaders From Ten Counties

Thirteen farmers, the official delegates of 10 of Illinois' prominent corn producing counties, are attending the first of a series of three corn germination schools which is being held this week by the College of Agriculture, University of Illinois in a further effort to help farmers cut down the losses of $47,861,977 which corn diseases are estimated to have caused growers of the state during the season just past. One county farm adviser and one representative of a farm machinery manufacturing concern also are attending the school. The present school will continue through Friday of this week. The second will be held the week of February 7 and the third the week of February 14.

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## J. H. Brock Now Serving As Assistant In Dairy Extension Work

J. H. Brock, who was graduated from the College of Agriculture, University of Illinois in 1925, has taken up his duties as assistant in dairy extension. He fills the position left vacant by the resignation of H. E. Jamison, who resigned to take up graduate work in agricultural journalism at the University of Wisconsin. Since graduation Brock has been doing official testing and farming in Kankakee County.

## New Dairy Course Expands Scope Of 1927 Farmers' Week Program

With dairy cattle herdsmen and cow testers in demand just now, the dairy department of the College of Agriculture, University of Illinois, will devote its share of the coming Farmers' Week program at the institution to a herdsmen's and cow testers' short course, it is announced by Dr. H. A. Ruehe, head of the department. Practical farmers and dairymen also will find something of value in the course, for the range of subjects includes milk and cream testing, the selection, feeding, care and management of dairy cattle, disease control, and demonstrations of feeding and fitting dairy cattle for the show ring. This is the first course of its kind to be held at the college.

Between now and the first of the year as many as ten dairy herd improvement associations of the state probably will need cow testers, while opportunities for herdsmen and testers are frequent throughout the year, Dr. Ruehe said.

On Tuesday, January 18, the first day of the course, there will be practice in milk and cream testing and discussions on why cow testing pays, the improved feeding of dairy cows, the principles of judging dairy cattle, and the production of high grade milk. Speakers will include O. R. Overman, W. J. Fraser, W. B. Nevens, W. W. Yapp, M. H. Campbell and M. J. Prucha, specialists in their various lines in the college dairy department.

The following day the practice in milk and cream testing and the discussions on dairy cattle judging will be continued and in addition there will be talks on the use of sweet clover pasture for dairy cows, the feeding of roughage to dairy cows in winter, the economy of keeping dairy herd records and the practical control of abortion. Speakers appearing for the first time on the day's program will be C. S. Rhode, dairy extension specialist, and Dr. Robert Graham, chief of animal pathology and hygiene.

New topics which will be taken up on the third day of the course include the preparation of dairy rations, dairy herd management, and the relation of the producer to his market. A demonstration on the fitting and showing of dairy cattle and a dairy cattle judging contest will be the main attractions on the final day of the course.

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## Judges And Cash Prize Awards Announced For Utility Corn Show

With $800 in cash prizes as the attraction, Illinois corn growers in both the junior and adult fields are centering their interest in the seventh annual Illinois Utility Corn show to be held in connection with the 30th annual Farmers' Week, January 17 to 22, 1927, at the College of Agriculture, University of Illinois. Classes for adult exhibitors will be allotted $500 of the premium money while the rest will go to the junior classes.

Applications for entry into the show should be made on or before December 28 and all samples should be in Urbana not later than Saturday, January 1, Hackleman announced. Judging of the corn will be done the following week and all samples placed in the corn germinator ten days before the opening of the show on Thursday, January 20. This is in line with one of the distinctive features of the Illinois show - a requirement that all corn shown shall be subjected to a germination test as well as a physical examination.

There will be special prizes to be competed for by farm bureaus in counties having ten or more ten-ear samples entered in the show. The ten highest scoring samples from each of such counties will be averaged and prizes awarded to the farm bureaus in the five counties having the highest scoring samples.

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Volume IX | December 22, 1926 | Number 46


## Marketing Of Grain Through Livestock To Be Up At Farmers' Week

Marketing of grains and farm by-products through livestock, a practice which has an important bearing on the present farm surplus question, has been given a prominent place in the livestock discussions billed for the coming 30th annual Farmers' Week at the College of Agriculture, University of Illinois, January 17 to 22, 1927. H. P. Rusk, head of the college animal husbandry department, will discuss the marketing of by-product roughage through beef cattle; J. L. Edmonds, chief in horse husbandry, will tell how to market grain and roughage through horses, and R. A. Smith, of the swine division, will discuss the marketing of legumes, oats and barley through hogs. These discussions will be based on experiments conducted by the animal husbandry department.

Other topics of a marketing nature also will have places of prominence in the livestock discussions during the five days of Farmers' Week. R. C. Ashby, assistant chief in livestock marketing, will tell what Illinois livestock shipping associations are doing; R. R. Snapp, of the beef cattle division, will discuss the market classes of beef cattle, and Sleeter Bull, of the meats division, will tell Farmers' Week visitors about market classes of beef. The grading of Illinois eggs will be discussed by P. A. Dyer, of the state department of agriculture, Springfield; while R. H. Wilcox, of the college farm organization and management department, will tell about the costs of producing hogs, and L. J. Norton, of the agricultural economics division, will discuss the relationship between corn and hog prices. One day on the livestock program will be given over to hog raising and pork production problems, poultry problems will be allotted an afternoon; animal breeding and disease control problems an entire morning; beef cattle production one morning, livestock marketing an afternoon, and horse and sheep production problems an entire morning.

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## Increased Use Of Dairy Products Brightens The Dairying Outlook

With a 36 percent increase in the per capita use of all dairy products since 1909, the outlook for the future of dairying is highly promising, Dr. W. B. Nevens, dairy cattle feeding authority of the College of Agriculture, University of Illinois, says. Recent figures from the federal department of agriculture show that records of butter and cheese consumption have been kept since 1849, although records of other dairy products are available for only a few years, according to Dr. Nevens. The per capita consumption of butter is now about three pounds a year more than it was in 1849. Although cheese consumption has fluctuated somewhat it is now a little over four pounds a person a year. The per capita consumption of whole milk is now about 29 percent greater than it was nine years ago. Condensed and evaporated milk also have been put to a larger per capita use during the same period. "People are now eating about two and a half times as much ice cream as in 1909, the per capita consumption now being about 11 quarts annually."

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. Mumford, *Director*.

## Wide Variation In Lime Needs Of Soil Found On Experiment Fields

Records from the 50 or more soil experiment fields which the College of Agriculture, University of Illinois maintains over the state show wide variations in the needs of Illinois soils for limestone, according to Dr. L. H. Smith, of the college agronomy department.

As an illustration he cites two extreme cases where the fields are under the same crop rotation of wheat, corn, oats and clover. On one field, where the soil is very acid, limestone applied in addition to manure produced an average annual increase in crop yields amounting in value to $8.63 an acre. During the same period on another field in a different part of the state, limestone applied along with manure produced, not a crop increase, but a decrease such that there was an average annual loss of 81 cents an acre. Between these two extremes there are all degrees of profit and loss on the 50 or more experiment fields, although the balance usually is on the side of profit. An actual loss through the use of limestone is rather exceptional.

"The question then arises: How is the farmer to know whether his land needs lime? Much information on this question is to be obtained in connection with the soil survey. Some soil types are uniformly acid and therefore their need for limestone is emphasized in the description which is given of them in the soil survey reports. Other types being alkaline throughout do not need lime and this fact is stated in the report. There are, however, still other soil types in which the lime requirement is not uniform. It may vary from field to field on the same farm. It often varies from one part of the field to the other. It may even change on a given field with the passing of time, especially under heavy cropping. Obviously, in such cases a definite recommendation in regard to liming cannot be made. Under these circumstances the farmer is advised to resort to one of the tests that have been devised for indicating lime requirement, calling, if necessary, for aid from the county farm adviser or from the state experiment station."

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## Half Dozen Short Courses And Schools Are Scheduled for January

Short courses featuring a wide variety of different lines of farming will be held from one end of the state to the other next month, by the College of Agriculture, University of Illinois, according to a list of dates announced by H. W. Mumford, dean of the college. One of the courses will be held in the extreme northern part of the state, two of them in the extreme southern part and the rest here at Urbana.

Dates for the different courses include the following:

January 3 to 29 - Dairy manufacturers short course, Urbana
January 4 and 5 - Horticultural school in cooperation with the University of Kentucky, Metropolis
January 6 and 7 - Southern Illinois fruit growers' school, Carbondale
January 10 to 15 - Gas engine and tractor school, Urbana
January 13 and 14 - Truck growers' school, Cook County
January 24 to 29 - Second gas engine and tractor school, Urbana

Plans for the Cook County truck growers' school are not yet complete and it may be that this course will be extended to four days, thus allowing a two-day school at two different points in the county.

The six schools and short courses are in addition to the 30th annual Farmers' Week which will be held at the college January 17 to 22.

## Half Of Farm Work Could Be Lightened By Use Of Electricity

Half or more of the work which the Illinois farmer does is performed around his buildings and lots and therefore is work which could be lightened through the use of electricity, it is shown by records which the College of Agriculture, University of Illinois has obtained on ten farms located eight miles southwest of Urbana. The ten farms are those being used in a study which the college experiment station is making on the farm uses of electricity in cooperation with the electrical power interests of the state and electrical equipment manufacturers. One of the purposes of the study is to determine the extent to which electricity may be used economically to lighten the farmer's work.

From 50 to 60 per cent of the work which the operators of these different farms did was performed on such things as caring for livestock, repairing and improving buildings and machinery, grinding and handling feeds and other miscellaneous labor around the buildings and lots, J. C. Bottom, of the college farm organization and management department, pointed out.

The total average number of hours of man labor performed on each of the farms in a year was found to be 6,423. The farms averaged 295 acres in size and had 42 per cent of their total area in corn last year. The farms are typical of the central Illinois region. Figures on the ten farms are in line with those obtained by the farm organization and management department on many other Illinois farms. The power line which supplies electric current to the ten farms was built the spring of 1925. Since then a financial record and a detailed record of all labor performed on these farms have been kept by the farm organization and management department as an aid to the studies which are being made under direction of the farm mechanics department.

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## Additional Milk Cost Figures Announced For St. Louis District

Thirteen farmers in Madison, Clinton and Washington Counties last year made ten cents above all expenses on each 100 pounds of milk which they produced, according to additional figures announced today by the farm organization and management department of the College of Agriculture, University of Illinois, on costs of producing milk in the large milk producing centers of the state. Fluid milk for the St. Louis market is produced by most of the 13 farmers. In an earlier report on the costs of producing milk in DuPage and Stephenson Counties the department presented figures which showed that eight dairymen in those two counties last year lost an average of about four cents on each 100 pounds of milk which they produced.

Profits of the 13 farmers in the St. Louis district amounted only to about $8.00 on each cow, for the animals cost an average of $142 during the year and produced $150 worth of products, according to Karl T. Wright, who summarized the records which the farmers kept in cooperation with the college. A total of 145 cows were kept by the 13 dairymen. The average annual production of the 145 cows was 6,723 pounds of milk or a total of 974,789 pounds, which was produced at a cost of $1.35 a hundred pounds, according to Wright. That the average farmer in the territory produced milk at a loss during the same period is indicated by the fact that the 13 farmers had been keeping a daily record of each cow's production and had disposed of low producers, Wright said.

"Feed and labor together accounted for 85 per cent of all the costs of the 145 cows, feed being charged with more than 61 per cent of the costs and man labor with nearly 24 per cent. Charges for the use of buildings and equipment, interest on investment in cows, insurance, veterinary and miscellaneous made up the remaining 15 per cent.

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Volume IX | December 29, 1926 | Number 47


## Authorities Commend New Type Of Experiment Station Report

Proof that the scientific side of agriculture can be made attractive and useful to the farming industry is seen in the praise and commendation which the farm press, federal and state authorities and farmers in general are voicing for the recent publication, "A Year's Progress in Solving Some Farm Problems of Illinois". The publication is the 39th annual experiment station report of the College of Agriculture, University of Illinois. For three years now Director H. W. Mumford has issued such a report for the station and apparently it is performing a service in keeping farmers and other interested persons in touch with the new facts which investigators of the institution are developing on different farm problems, officials of the station said. The report for the past year covers approximately 200 different investigations.

"Every one interested in any important branch of Illinois farming will welcome and be informed and inspired by reading 'A Year's Progress in Solving Some Farm Problems of Illinois', the Breeders Gazette says editorially. It further characterizes the report as an honor to the agricultural college staff and to Illinois farmers.

"The data in the publication are from the reports of heads of departments and project leaders. They have been compiled and excellently edited by F.J. Keilholz under Dean Mumford's direction." After discussing some of the more important lines of work which are reported in the publication, the editorial continues, "Dozens of clear, definite statements and many tabulations in 'A Year's Progress in Solving Some Farm Problems of Illinois' tempt us to prolong these comments, for here is a rich vein of valuable information. Dean Mumford's report deserves and will reward wide distribution."

The federal department of agriculture placed its official stamp of approval on the report when E. W. Allen, chief of the federal office of experiment stations, acknowledged receipt of a copy from Dean Mumford as follows: "The volume makes an impressive showing of the scope and character of the station's work. You have established a splendid record in bringing up the annual reports and especially in getting out so promptly the one for the past year."

The Chicago Daily Drovers' Journal likewise commended the college's effort to get the reports out promptly after the close of the fiscal year. Speaking editorially the Journal said, "If that can be done we reckon it will set a record in experiment station publication and farmers will begin to sit up and take notice. They may even take to reading such reports when they find they are no longer ancient history. It should be added that the Illinois report appears to be of usual interest which indicates that there has been no sacrifice of substance for speed. Such enterprise in getting out reports deserves commendation as well as notice."

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Corn Borer To Feature Agronomy Program During Farmers' Week

Another move to block the advance of the dread European corn borer into the corn fields of Illinois will be taken here next month when the insect will be given the place of prominence in the soils and crops sectional meetings which are to be held during the 30th annual Farmers' Week at the College of Agriculture, University of Illinois, January 17 to 22, according to an announcement by Dr. W.L. Burlison, head of the agronomy department. Six other departments of the college will hold sectional meetings simultaneously with those of the agronomy department during the week. Sharing places with the corn borer in the soils and crops sectional meetings will be such topics as fertilization, the use of the large combined harvester-threshers in gathering Illinois grain, corn diseases, corn breeding and the control of quality in crops.

The main "gun" which will be trained on the borer during the coming Farmers' Week program will be D. J. Caffrey, who is in charge of the research work on the insect for the federal department of agriculture. He will discuss the corn borer's invasion of North America. Following this discussion, R. M. Salter, chief in agronomy at the Ohio Agricultural Experiment Station, Wooster, will outline the steps that have been taken to control the borer in that state, one of the most heavily infested at the present time. Much hope for the successful control of the corn borer lies in the farm machinery field and accordingly two addresses have been scheduled along this line. R.I. Shawl, of the farm mechanics department here, will take up the question of machinery as a means of corn borer destruction and Theodore Brown, manager of the experimental department, John Deers & Company, Moline, will tell what is being done to develop new implements of warfare. As an added attraction, moving pictures from the corn borer "battle front" will be shown in cooperation with the federal department of agriculture. A special exhibit showing the life stages of the insect and the damage which it causes to corn also will be made.

Among the outside speakers who will assist local staff members in staging the soils and crops sectional meetings will be A. N. Abbott, Morrison; J.R. Holbert, agronomist with the federal department of agriculture, who has headquarters at Bloomington; T.L. Worthen, leader in soils and crops extension work for the New York state college of agriculture, and William Riegel, Tolono, and a member of the soils advisory committee of the college agronomy department. The annual Illinois Utility Corn Show and a meeting of the Illinois Crop Improvement Association will be added features on the soils and crops program.

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## Modern Machinery Adds To Value Of Dairy Manufacturers' Course

New and modern dairy plant machinery which is part of the equipment in the new dairy manufactures building at the College of Agriculture, University of Illinois will be available for the use of those enrolled in the annual dairy manufactures short course which is to be held at the college January 3 to January 29, A.S.Ambrose, assistant chief in dairy manufactures, who has charge of the course, points out. This will give the students a chance to study and become familiar with the operation of several makes and styles of dairy equipment. The first week of the course will be devoted to buttermaking, the second week to the handling of milk for city milk supply and the last two weeks to the manufacture of ice cream and condensed milk. There will be both lecture and laboratory work. While the course is planned primarily for those who have had some practical experience in the manufacture of dairy products, such experience is not required. No fees are charged for the course, the only expense being for room and board.

## Thousands Of Tests On Soils Give Facts On Plant Food Supply

Since the start of the soil survey in Illinois, some 6,500 soil samples, representing 14 of the more important agricultural soil types of the state, have been analyzed by the experiment station of the College of Agriculture, University of Illinois, according to E.G. Sieveking, of the agronomy department. These samples are from about two-thirds of the counties in Illinois and give some interesting facts on the distribution of calcium and magnesium, two important plant food elements, in the farm lands of the state, he said.

"In the case of soils that are not acid, there is a close relationship between the total calcium and the total magnesium and a very close relationship between each of these two elements and the carbonate content of the soil. Among the dark colored soils, for instance, a larger proportion are found to contain calcium carbonate (limestone) than is the case with the lighter colored soils. This leads directly to the next observation that the dark colored soils contain, on the average, more calcium and magnesium. As the color becomes lighter the amount of these two elements becomes less and the acidity rises until, in the yellow soils of the southern tip of the state, the land has very small amounts of calcium and magnesium and a very high lime requirement.

"A study of the soil analyses also furnishes proof that calcium leaches from the soil more readily than magnesium. The dark colored soils contain, on the average, more calcium than magnesium; the brownish-gray soils, having been leached to a greater extent, contain the two elements in about equal amounts, while the more yellow soils, and the gray soils which have been heavily leached, contain more magnesium than calcium. This rapid outgo of calcium is brought out more strikingly when only one soil type is considered, namely, the yellow silt loam. In the upper Illinoisan glaciation, which, roughly, lies north of the Illinois river and south of the Green river, only 25 per cent of the soils studied contained more magnesium than calcium, while in the lower Illinoisan glaciation, which includes the south central group of counties, 85 per cent of the soils contain more magnesium than calcium.

"A very important point which the soil analyses bring out is the close relation between the calcium content of the soil and its needs for lime. Each decrease in calcium is offset by a rise in the lime requirement, and these increases in the lime requirement reach their maximum in the old, light colored soils of southern Illinois."

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## Farm Bookkeeping To Reach Eight Counties In Twelfth Year

Farm bookkeeping, which got its start in an organized way in Illinois, is entering its twelfth year in this state with more farmers than ever alive to the advantages and merits of a definite system of accounts, according to R. R. Hudelson, extension specialist in farm organization and management at the College of Agriculture, University of Illinois. Eighty different counties have asked the college for aid in helping farmers keep accounts on their individual businesses and each of these counties will be visited by a representative of the farm organization and management department by March 1. During the visits to these counties those farm operators who have kept financial records for 1926 will be helped in closing their accounts and in starting their 1927 records. Others who are interested will be helped to start their accounts for the first time. During the past year approximately 1,600 Illinois farmers kept definite accounts in the complete farm account book prepared by the college. In 1925 a total of more than 1,100 Illinois farmers finished their accounts.

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X | January 5, 1927 | Number 1


## New Project Aimed At Control Of Most Serious Cattle Disease

With Illinois cattle breeders much interested in stopping the heavy losses that are now being caused by the abortion disease, the animal pathology and hygiene division of the College of Agriculture, University of Illinois has just launched a new project to aid in the control of it. For many years this disease has been ignored by breeders. Now, however, it is recognized as causing a greater loss to the cattle industry than any other single disease.

Fifteen purebred cattle herds in nine counties of the state already have been signed up to be used in the project. St. Clair, Coles, Tazewell, Champaign, Ogle, DuPage, Wayne, Bond and Woodford counties are represented. Studies will be made to determine if repeated blood tests, isolation of reactors and disinfection of premises are practicable in the control of abortion caused by the abortion germ. An effort also will be made to determine the extent of infectious abortion not related to the abortion germ.

The project recently was put before veterinarians and some of the principal herd owners in the vicinity of Macomb. Practicing veterinarians of the county who heard Dr. Robert Graham, chief in animal pathology and hygiene, explain the project were Drs. O. Schanatterle, Goodhope; G. U. Gray, Adair; F. C. Jones, Macomb; F. C. Brown, Blandsville, and L. Hollister, Avon.

Herds which are selected for study in the project will be blood tested at a nominal charge by the agricultural college. Strict sanitary measures to be used throughout the management of the different herds also will be mapped out for the guidance of the herd owners. Other breeders who are being troubled with the disease in their herds have been invited to consult the sanitation plan of control which the college has mapped out.

"The heavy damage done by contagious abortion is a matter of deep concern to dairymen and cattle breeders," Dr. Graham said. "Sequels of this disease are barrenness, sterility and impaired milk production. These together with abortion itself are the cause of serious losses in many herds."

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## Two Hundred Forty Books Are Suggested For Farmer's Library

Two hundred forty books covering 38 branches of farming and farm home making have been selected by the College of Agriculture, University of Illinois, as suitable ones for the farmer's library. The list was compiled in response to frequent requests for references to suitable books along special lines of agriculture. Country life books are most numerous in the list, 13 being given under this heading.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director.*

## Fruits And Vegetables Have Prominent Place At Farmers' Week

Fruits and vegetables, mainstays on many Illinois farms, will get their full share of attention during the coming 30th annual Farmers' Week at the College of Agriculture, University of Illinois. Sectional meetings arranged by the horticultural department will give farmers and their wives a chance to get new information and help on a wide variety of orchard and garden problems.

Six other departments will hold sectional meetings during the week for the benefit of farmers who are especially interested in soils and crops, livestock, dairying, farm organization and management, farm mechanics and beekeeping. In addition there will be general sessions each afternoon and evening during the week. Subjects of general interest will be taken up at these general sessions.

The sectional meetings for those interested in gardening and fruit growing will get under way on Tuesday, January 18. Such topics as the pruning of young fruit trees, the pruning of old apple trees, the long row vegetable garden and problems in the rotation of fruits and vegetables are billed for the opening day. Speakers include W. A. Ruth, M. J. Dorsey, B. L. Weaver and L. A. Somers, all members of the college horticultural department.

On Wednesday, the second day, the horticultural sectional meetings will be held jointly with those in beekeeping. There will be discussions on the control of insects, bees and their relation to horticulture, orchard insects and the spray program and beekeeping for horticulturists. Speakers will be C. L. Metcalf, head of the university entomology department; W. P. Flint, chief entomologist of the Illinois State Natural History Survey; V. G. Milum, university apilculturist, and Profs. Ruth and Dorsey.

Soil management for orchards, small fruits, grapes and nuts, the grading and packing of fruits and vegetables and the marketing of fruits and vegetables are on the program for Thursday. These topics will be discussed by R. S. Marsh, A. S. Colby, H. M. Newell and J. W. Lloyd, all members of the horticulture department.

On the final day's program the discussions will center around varieties of fruit for planting, fruit diseases and their control, fertilizers for vegetables and sweet corn breeding. W. S. Brock, H. W. Anderson, W. A. Huelsen and M. C. Gillis will be the speakers.

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## "Better Homes Campaign" For Baby Chicks Pushed In 30 Counties

Equipped with hammers and saws, interested poultrymen throughout the state are attending brooder house construction demonstrations which the farm mechanics department of the College of Agriculture, University of Illinois is holding in 31 different counties. By seeing and taking part in the actual construction of a full-size brooder house those who attend the demonstrations will find it simple matter to go home and put up the right kind of a building or else remodel those that are now in use, provided they are not properly constructed F. P. Hanson, farm mechanics extension specialist, pointed out. The demonstrations are designed to further the poultry sanitation program which the college is advocating for the state.

Counties in which brooder house construction demonstrations have been or will be held this winter include Kendall, Iroquois, Marshall, Putnam, Peoria, Woodford, Ford, Douglas, Menard, Moultrie, Macoupin, Brown, Knox, Marion, Clay, Washington, St. Clair, Randolph, Williamson, Jefferson, Johnson, Wayne, Wabash, Lawrence, Montgomery, Stark, Effingham, Scott, Schuyler, Sangamon and Cook.

## Soil Test Fields Show Possibilities In Sweet Clover Seed Crop

Yields of as much as seven bushels of sweet clover seed an acre, which the College of Agriculture, University of Illinois has harvested on some of its southern Illinois soil experiment fields, indicate that this seed crop, now little grown in that region, might be a profitable one for farmers to take up, according to C. J. Badger of the agronomy department. Sweet clover seed sells for from $6.00 to $8.00 a bushel.

Yields of sweet clover seed on the Odin experiment field, in Marion county, at times have come close to seven bushels an acre, while the average for 1910 to 1925 was approximately two bushels an acre, according to Badger. This was on land that was well limed, although it was the common, light colored, level southern Illinois farm land.

Wabash valley sand land such as is found on the soil experiment field at Palestine, Crawford County, seems to yield an even better crop of sweet clover seed than other southern Illinois land. The high yield of seed on this field has been approximately 7¼ bushels an acre, with an average of about three bushels of seed an acre. However, this sand land must be limed before any success can be had with sweet clover.

"In addition to the direct money return for seed, sweet clover has considerable fertilizer value after the seed is removed. For instance, on the Odin field in 1924, corn made 48.8 bushels an acre on land which was limed and which had the sweet clover chaff returned to it after the seed had been harvested. On unlimed land where no sweet clover was grown corn yielded only 15.2 bushels an acre the same year. This is probably an extreme case, but it shows the fertility value of sweet clover in addition to its crop value."

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## Baby Beef Club Work Off To Good Start For Another Record Year

Baby beef club work among Illinois farm boys and girls is off to what promises to be another record year, C. E. Gates, boys' club specialist at the College of Agriculture, University of Illinois, says. Tazewell county has sent in the first official county enrollment of members for 1927. By the time the returns are received for the entire state the number of counties pushing this kind of work is expected to be greater than in 1926. Last year the state enrollment in baby beef club work totalled 1,201 members who fed 1,322 calves. The year was finished up in a highly successful manner at the past Chicago International Livestock Exposition. Illinois club members, in competition with those from other states took the grand championship and the reserve grand championship on fat steers in the junior livestock feeding contest. These winnings enabled Illinois to outdistance Iowa and Indiana for the state prize.

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## Trained Operators Seen As Best Solution Of Tractor Troubles

Tractor schools which the farm mechanics department of the College of Agriculture, University of Illinois will hold during the weeks of January 10 to 15 and January 24 to 29 will be designed to remedy the fact that 90 per cent of the tractor troubles rest with the operators themselves, R. I. Shawl, in charge of the schools, has announced. Both the theory and practice of tractor operation and care will be stressed. "An operator must use 'tractor sense' in the care of his machine, but to get the most out of it he should understand the underlying principles of construction and operation and know how to make the necessary adjustments," he said.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X January 12, 1927 Number 2

## College Gives Program For Reducing Future Losses From Corn Borer

With the corn borer a reality in Illinois, there are eight practices which farmers of the state should begin to use now in order to reduce any future losses which the pest may cause, it is recommended in a program announced by H. W. Mumford, dean of the College of Agriculture, University of Illinois. The program was prepared by specialists of the college in cooperation with State Entomologist W. P. Flint.

The eight practices which are recommended will be stressed in the forthcoming corn borer circular which the college is preparing. They are as follows:

1. Adopt soil management practices that will build up the productivity of the soil and help to produce maximum yields of corn on large, healthy stalks.
2. Select and grow earlier maturing varieties of corn, with heavier stalks, that can be planted late.
3. Adopt a good rotation of crops, using one or more of the ten rotations suggested by the college specialists. These rotations allow for the growing of maximum acreages of crops which the borer does not injure. They are helpful also in improving the productiveness of the soil and they enable the farmer to handle crop and weed refuse to the best advantage and at a low cost.
4. Utilize as much of the corn crop as possible through the silo and as finely shredded material.
5. Increase the acreage of legumes. They are injured less by the borer than are the other crops and are valuable in all crop rotations.
6. Practice clean plowing. A large proportion of the insects will be destroyed if all crop and weed refuse is entirely covered.
7. Become familiar with quarantine regulations and help in every way possible to carry them out.
8. Watch fields for the presence of this insect and send suspected specimens to the state entomologist at Urbana for identification.

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## Tests Show Milking Machine Saves Time Even For Small Herd Owner

Use of a milking machine will save considerable time and labor even for the owner of a small dairy herd of 10 to 12 cows, according to results of investigations made by the farm mechanics department of the College of Agriculture, University of Illinois. On one farm where studies were made it was customary for the hired man to come in from the field an hour early in the evening to help milk. The herd averaged about 10 cows. With the aid of an electrically operated two-unit milk machine the farmer now does all the milking himself and does it in about one-half the time, according to F. C. Kingsley, of the department. It took about 15 minutes a day to keep the milker clean. "Some trouble was experienced during the summer in the milk souring, but the cause was traced back to improper cleaning of the milker and as soon as this fault was corrected no further trouble occurred."

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. Mumford, *Director*.

## Swine Sanitation Again Proves Its Merits On Many Illinois Farms

Once more the old has given way to the new, but this time it is pork production on Illinois farms that is affected.

Swine sanitation, the new idea in hog raising, this past year again proved so much more profitable than the old slipshod way, that almost without exception the farmers who have tried the system will continue to use it in the future, according to reports coming to E. T. Robbins, livestock extension specialist of the College of Agriculture, University of Illinois.

A total of 1,213 farmers in 75 counties of the state cooperated with Prof. Robbins and their county farm advisers during the past year in demonstrating the merits of the sanitation system which the college advocates. Written reports already have been received from 160 of these farmer-demonstrators in 38 counties.

Ninety-nine per cent of the farmers who sent in reports said that the sanitation system is more profitable than the old way and that they will continue to use it. This is in line with the showing which the system made when it was tried out on hundreds of other Illinois farms in 1925.

More pigs raised by each sow, fewer runts, cheaper gains and quicker market weights are some of the main benefits which the farmers who used the system obtained this year. These benefits followed as a result of the fact that the sanitation system protects young pigs from infestation by round worms, one of the most serious internal parasites of swine.

The system provides this protection by requiring that farmers have their sows clean at farrowing time, place them in clean farrowing pens and later haul, not drive, both the sows and pigs to clean pastures where the pigs should be kept until they are at least four months old.

The reports from the 160 farmers show that some of the men skipped one or two of the four requirements of cleanliness, but altogether their work was 86 per cent complete in these respects.

The average time required for one man to clean and scrub the farrowing quarters for one sow was 45 minutes. The average time to wash a sow was 20 minutes. On 56 per cent of the farms the "clean" pasture had not been used for hogs within the last two years. The average area of pasture allowed for one sow and her litter was nine-tenths of an acre.

On 18 per cent of the farms the pigs drank running water from a creek, ditch or tile outlet and these farmers got the best results, Prof. Robbins pointed out. They had only one runt among each 111 pigs, whereas there were twice as many runts among the pigs that drank from troughs.

The average for all the 160 farms was one runt among each 71 sanitation pigs. The farmer-demonstrators raised 94 per cent of the pigs saved at birth and the litters raised averaged 1½ pigs more than when the pigs were raised the old style, "wormy" way. Furthermore, the pigs averaged 24 pounds heavier at four months old and were ready for market when six weeks younger than usual, according to the farmers' reports.

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## To Profit Most Dairyman Must Get Feed Supply From His Own Farm

Skilled feeding is of little avail to the modern dairyman unless he is able to make his own farm supply the feeds, Prof. W. J. Fraser, dairy farming specialist of the College of Agriculture, University of Illinois, told those attending the recent annual meeting of the Illinois State Dairymen's Association at Harrisburg. Freight, bagging and handling make purchased feed expensive and the successful dairymen therefore must be just as good a farmer as he is a dairyman, he said. Dairymen often pay $25 a ton for alfalfa hay, whereas they could grow it themselves for about $10 an acre by investing from $4 to $8 an acre in limestone.

"No one system of crop rotation will fit every dairy farm, but some one rotation can be worked out for each and every farm. Demands of the dairy herd for legume feeds, demands of the soil for nitrogen supply, obtained through legumes, and the need for the most profitable use of land and labor combine to make legumes the basis of a good dairy rotation. The rotation is a definite business plan, providing as sure a return as possible year after year and thereby reducing the gambling element in farming. It must be planned for a definite number of animals so that enough feed will be on hand every day in the year to keep every cow fed to the limit of her productive capacity.

"Fields must be of the same size so that about the same amount of feed is produced each year. Good legume hay, alfalfa preferred, and corn silage are the foundation upon which the winter feed supply is based. One and a half tons of alfalfa hay and four tons of silage should be allowed annually for each cow of the larger breeds. Pasture must be provided each year. On tillable land three-fourths of an acre of sweet clover a cow is a good standard. Where untillable bluegrass is available, then the rotation must be planned in reference to it. Often it can be limed and sown to sweet clover."

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## Legume Inoculation Highly Profitable In Most Cases If Done Right

Inoculation of legumes is highly profitable in about 95 out of 100 cases when properly done, it is reported by W. R. Carroll, assistant in soil biology at the College of Agriculture, University of Illinois. This practice of inoculating either the seed or the soil with proper root nodule bacteria at the time of planting the seed may markedly improve the quality of leguminous crops largely by increasing both the palatability and the percentage of protein in the plants, he said.

"In 25 out of 29 comparisons with canning peas, inoculation gave as high as a 10 per cent increase in the protein content of the peas. On a highly fertile acid soil, inoculation produced an increase of 1,339 pounds of shelled peas an acre, or a return, at three cents a pound, of $40 an acre. Inoculation increased the yield of vines 7,857 pounds an acre.

"The protein content of the vines also was increased 35 per cent. This extra amount of nitrogenous material made them much more valuable either for hay or manure. Similar comparisons with inoculated and uninoculated soybeans showed increases of 240 to 1,108 pounds dry weight an acre and an increase of 7 to 16 per cent in protein content in favor of the inoculated beans.

"Inoculation has shown marked favorable influences on practically every species of cultivated legumes. Tests with alfalfa, the clovers, and the vetches have all shown enough improvement in quality of the crop to warrant the practice of legume inoculation."

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X | January 19, 1927 | Number 3

## New Circular Stresses Good Rotations As Corn Borer Weapon

Illinois' new corn borer circular, which was referred to in the Extension Messenger of January 12, and which has been characterized by one writer as the state's "declaration of war" against the pest, has just come off the press and will immediately be placed in the hands of farmers of the state to the extent of 30,000 or more copies. The circular's eight recommendations whereby farmers can begin now to reduce future losses from the corn borer were listed in the Messenger of January 12.

Good rotations which will permit all plant refuse to be removed from the field and utilized or plowed under and in which only a moderate acreage is kept in corn and the remainder in non-susceptible crops, apparently offer the greatest promise for controlling this insect under corn-belt conditions, according to the circular. Ten different rotations are suggested in the circular.

Authors of the new publication are W. P. Flint, chief entomologist of the Illinois State Natural History Survey; J. C. Hackleman, chief in crops extension and F. C. Bauer, chief in soils extension. The circular covers 16 pages and among other illustrations features a colored map showing the spread of the European corn borer during 1926. The circular is No. 313 and is entitled, "Learning to Live with the European Corn Borer."

Rapid spread of the insect during the past year, the four different stages through which the insect passes, the plants on which it feeds, farm crops which are only slightly infested, what Illinois has been doing to combat the corn borer, the most effective means of controlling the pest, different rotations which are recommended under corn borer conditions, the value of having corn land in shape to produce maximum yields on large healthy stalks and insect enemies of the corn borer are among the subjects discussed in the new circular.

Recent finding of the single specimen of the corn borer in Illinois does not mean that serious damage will occur immediately in this state, the circular points out. Judging by conditions in Ohio and Michigan, five or six years or more may elapse after the corn borer becomes established before any material damage will be caused by it, the authors of the publication point out.

They go on to stress, however, that in order to avoid the most serious damage from the pest, plans for combating it must be started before the insect becomes established. While it will not stop the growing of corn, it can place a tremendous handicap on the crop, and it should therefore be a matter of vital interest to every Illinois farmer to learn in advance how to live with it, the publication points out.

Farmers and other interested persons may get copies of the new circular free by writing to the College of Agriculture, University of Illinois at Urbana.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Dean Mumford Sets Down Six Objectives For Farming Industry

Six objectives, to which Dean H. W. Mumford believes "we all need to direct our efforts more diligently and more effectively if we are to make progress", featured his opening address before the 30th annual Farmers' Week being observed this week by the College of Agriculture, University of Illinois.

His six objectives were, in short, as follows:

"1. There is no doubt but that we need to find some way to adjust our productive efficiency and activity to demand. Our production policies must be more sensitive to changes in demand for foodstuffs, whether these are due to changes in population, to obvious needs or to the eccentricities of appetite.

"2. More satisfactory ways must be found to anticipate the economic need for changes both in kind and in quality of agricultural production. The reasons for such changes must be so clear that farmers will feel a justifiable confidence in adopting them.

"3. We must increase our efforts to reduce the costs of production. By putting into practice the improved methods that are now known farmers might produce a smaller volume of product without reducing their incomes.

"4. The problem of the redirection of the use of marginal lands and the utilization of the labor of marginal farmers must be given more attention.

"5. We must study more carefully the business organization of the farm. Not a few farmers who have been accredited progressive, and therefore good farmers, so far as their production was concerned, have found, by the test of simple farm-accounting records, that they have fallen short of making satisfactory net incomes.

"6. Finally, I wish to stress the importance of the cooperative principle. A very considerable number of the things that need to be done for farming and farmers now and in the future can be accomplished only through cooperation among farmers. This cooperation must extend to organization of a general nature and more specifically to organization in production and marketing.

He voiced the opinion that the agricultural college, the experiment station and the extension service "have not been shooting very wide of the mark" in their respective lines of work. As proof he pointed out that "the purpose of our experiment station now and since the first Armistice Day is to address ourselves to reducing costs and not to increasing quantity".

Dean Mumford further pointed out that the objectives of the projects that are being furthered by the extension service of the college are: more economical production per unit of product, a better grade of product for which there is a more satisfactory market, a better organization of the farm business, more labor-saving equipment on the farm and in the home and more organization among farmers for the purpose of facilitating cooperation in production and marketing.

## Ohio Authority Sounds Note of Optimism In Corn Borer Address

The corn borer fight has just begun. Some real advances have been made but no one dares predict the outcome. Entomologists agree that the opportunity to exterminate the insect has long passed. It is possible that voluntary or enforced adoption of control methods, plus what may be accomplished through the introduction of parasites, will delay the borer's march through the corn belt. Few are willing to predict that it will be stopped. If we cannot stop the borer, then we must prepare to grow corn in spite of it. It is unthinkable that the corn belt farmer will quit growing corn as they have practically done in parts of Ontario, Canada. It is clearly up to our agricultural research agencies to devise methods that will avert such a catastrophe.

Mechanical methods of control aiming at the destruction of all corn residues that may harbor the insect will be an important factor. Excellent progress has been made in this direction. The agricultural engineers, working closely with the farm implement manufacturers, have already designed low cutting corn binders, stubble pulverizers, corn pickers with attachments for cutting up the stover in short lengths, and special plows and attachments for plows that will permit a clean job of plowing under stubble and standing stalks. Most of these implements are already on the market. However, even if they should be adopted by all farmers in the infested territory, methods of mechanical control can never be 100 per cent effective. Determining the best cultural practices for growing corn under corn borer conditions and the development of the most suitable types of corn may be of vital importance.

By a series of varietal and date of planting studies it has been established that there exists no practical difference among commercial varieties of corn in their susceptibility to infestation. On the other hand, late planting has been very effective in reducing infestation. A big problem before the corn breeder is to develop types of corn that can be planted late and yet produce a good yield of sound corn. In Ohio we also are trying to discover whether such characters as immunity to infestation or resistance to injury exist in the corn plant. No definite evidence of immunity among these strains has been observed. On the other hand certain upstanding strains with large, rugged stalks were found to be able to carry a given borer load with a minimum of broken stalks or other evidences of injury.

Since delaying the planting date to escape infestation brings in the danger that the crop will fail to ripen before frost, Ohio experimenters are on the lookout for a way of speeding up the maturity of the crop. Various kinds and amounts of fertilizers and various distributions between hill and broadcast applications are being tried. The results secured from one year's work are encouraging but not conclusive. The kind of soil seems to be a big factor.

Some of the other questions that agronomists are trying to answer in Ohio are: How does thickness of stand affect infestation or injury? What crop rotations are best suited for corn borer conditions? Are the grain sorghums sufficiently immune to offer any possibilities as substitutes for corn? How much does the farmer lose when he burns his corn stalks? Can the method of utilizing corn stalks for making synthetic manure be made of practical value?

Ohio workers on the corn borer problems are optimistic as to the outcome. It may require the adoption of radical changes in our methods of growing and disposing of the crop. Quite likely the cost of corn production will be increased. Marginal producers may be forced to reduce their acreage. But, the great corn belt will continue to grow corn.-R. M. Salter, chief in agronomy at the Ohio Agricultural Experiment Station, Wooster, in an address before the 30th annual Farmers' Week at the College of Agriculture, University of Illinois.

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X | January 26, 1927 | Number 4




## Thirtieth Farmers' Week Seen As One Of Most Successful

If the expressed opinions of Farmers' Week visitors can be taken as a measure, then the thirtieth annual Farmers' Week held last week at the College of Agriculture, University of Illinois was one of the most successful ever held.

"More people this year have taken the trouble to come to tell me personally that they were pleased with the program than has ever been the case before," Dean H. W. Mumford said in discussing the week's events.

Similar satisfaction likewise was shown by those who attended the home economics extension conference, held for two days during the week, according to Miss Kathryn Van Aken, state leader of home economics extension. Most of the several hundred women who attended the conference this year felt that the program afforded more material which could be taken back home and put into practice, she said.

Work will be started soon to prepare as good or better program for next year's Farmers' Week.

"From the first to the last the Farmers' Week program this year held the interest of all those attending," Dean Mumford said. "Every out of town speaker was here to fill his or her part in the program and each of them had a live message. Naturally, Lorado Taft's lecture drew the largest attendance for an evening session, while the corn borer program on Wednesday afternoon was the largest attended afternoon session. The next largest afternoon session was the final one of the week, when Dr. Henry C. Taylor spoke. Outstanding as a session which combined both entertainment and instruction was the "little international" with its horse and mule pulling contest and other attractions."

Meetings of the state art extension committee, the Illinois Home Bureau Federation, the Illinois Crop Improvement Association, the Illinois Farm Advisers' Association and the Illinois Guernsey Cattle Breeders' Association extended the scope of interest in the week.

Just what mark would have been reached by the attendance had the weather been favorable is a matter of speculation. The record snowfall, the extreme cold during the early part of the week and the rain and slush during the latter part made weather conditions the worst that they have been for Farmers' Week in years and but for these unfavorable conditions the attendance at the Farmers' Week sessions alone undoubtedly would have been doubled or trebled.

"No review of Farmers' Week would be complete without a tribute to the local and state press for the manner in which it supported the event and the care that was taken to give adequate reports of the sessions. Thousands of those who were unable to attend because of the stormy weather were thus able to obtain at least a part of the benefits of the week by reading the newspapers."

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Livestock Prices More Favorable Than Any Time Since 1920

Livestock prices are now more favorable to the producer than they have been at any time since 1920, while the short time outlook for all corn belt products is "strong", Dr. L. J. Norton, assistant chief in agricultural economics, said in an address before the thirtieth annual Farmers' Week at the College of Agriculture, University of Illinois. This situation has been brought about by the reduced production of both livestock and crops, he explained.

He sounded a warning, however, against excessive expansion of production. Just as it is a mistake to expect any quick return to the very low prices brought on by the heavy production of 1920-1923, so it would be a mistake for farmers to allow temporarily favorable prices to tempt them to excessive expansion of production.

He explained that expanded production had been only one factor that contributed to the unfavorable price situation of recent years. Reduced production, temporary or otherwise, will not eliminate the other factors and they may be expected to continue to the disadvantage of prices paid farmers.

Taking up the reduced production in different lines of farming, Dr. Norton explained that production of most kinds of animal products appears to have been reduced to the point where consumers in their relative prosperous condition will consume at a relatively profitable price. Furthermore, the reduced production of feed crops, due to smaller yields per acre in 1926 for the country as a whole, will not permit any general expansion of livestock production, he said.

Excluding 1924, the corn crop and the corn carryover this year is reported to be the smallest since 1918 and the quality is poor, according to Dr. Norton. As for the hay crop it is the smallest since 1914. The combined production of corn, oats and hay, even after allowing for the reduced number of horses, seems to be the smallest in a number of years.

Eventually the present favorable relationship between the price of corn and livestock will result in increased numbers of livestock and this will tend toward lower livestock and higher grain prices.

"If 1927 is more favorable for the production of feed crops than 1926 was, the increased production will permit expansion in livestock production and tend toward lower prices. However, more than one bumper crop will be necessary to increase meat supplies to the burdensome total reached in 1923."

Two major difficulties which confront farmers in planning their production are illustrated by this situation, Dr. Norton said. The weather introduces a great deal of uncertainty and the tendency for farmers to expand profitable lines of production frequently eliminates the profits.

"For the individual farmer the best plan seems to be to stabilize production as far as circumstances permit and if shifts are made to avoid being attracted too strongly into lines that are temporarily profitable and not to be stampeded out of temporarily unprofitable lines."

## Federal Chief Outlines Possibilities In New Marketing Act

With the authority and funds made available through the passage of the recent federal cooperative marketing act, the federal department of agriculture can, for the first time, plan an intensive, long-time program of research in cooperative business, L. S. Tenny, chief of federal bureau of agricultural economics, assured Illinois farmers in the first evening session of the thirtieth annual Farmers' Week at the College of Agriculture, University of Illinois. His subject was, "What Farmers May Expect from the New Federal Cooperative Marketing Act."

Passage of the act should lead ultimately to more efficient distribution service by cooperative associations, by reason of the fact that the research work which is contemplated under the act will make for a better understanding of the principles required for success in cooperative marketing, he predicted.

This research work will help lay the foundation for the development of efficient cooperative organization, he said. It also will result in the accumulation of a fund of knowledge relating to the principles and practices of cooperation.

Passage of the act was significant and far reaching both because it establishes a rather definite governmental policy with respect to the Farmers' cooperative movement and because the federal government is now charged definitely with the responsibility of conducting research work on cooperative organizations and is given the funds for carrying on that research, the speaker said.

The act creates a division of cooperative marketing in the bureau of agricultural economics and thereby enlarges and intensifies the department's research, educational and service work in cooperative organization among farmers.

In citing the need for work of this kind, Tenny said, "So far have farmers gone in buying and selling cooperatively that the latest figures available show the huge sum of $2,400,000,000 representing the value of cooperative purchases and sales by farmers in the United States during the 1925 season. There are more than 10,000 separate and individual associations throughout the United States conducting their business for farmers on a cooperative basis.

"In brief the objects of the new division of cooperative marketing are to assist in the development of sound and progressive cooperation, to promote efficient operating practices by the associations and to disseminate information regarding the principles, practices and possibilities of the movement designed to be of service to cooperative associations and agricultural producers."

The division's research program will include studies of the development of cooperative marketing of particular commodities, a series of business studies of individual cooperative associations which have been operating over a period of years, a study of the legal problems of cooperative associations and research on the problems of membership relation, according to Tenny.

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Milk yields of many poorly fed cows have been increased as much as 50 per cent through better feeding, while in a few cases the yields of cows have been nearly doubled through the use of better rations, according to Dr. W. B. Nevens, assistant chief in dairy cattle feeding.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS,

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X | February 2, 1927 | Number 5


## Tests Furnish Added Proof Of Alfalfa's Value For Fattening Lambs

New evidence of the value of alfalfa, either as hay or pasture, for fattening western lambs is found in the lamb feeding experiment recently completed by the College of Agriculture, University of Illinois. One hundred and seventy-five lambs, averaging 63 pounds, were used. Seventy-five lambs were fed in dry lot in three groups of 25 lambs each and two groups of 50 lambs each were fed in the fields.

The dry lot lambs all received corn and alfalfa hay. In Lot 1 the feeds were hand-fed at the rate of 1.1 pounds of corn and 1.5 pounds of hay daily a lamb. The lambs so fed gained 25.7 pounds, or at the rate of .32 pound a day and required 3.4 pounds of corn and 4.7 pounds of hay to make one pound of gain in weight. Corn and alfalfa hay fed in the above manner have been considered a standard ration at this station for a number of years. A second lot was fed similarly for 21 days and then put on a ration of shelled corn and alfalfa hay self-fed. Very definite results were secured within this lot, as 50 per cent of the lambs had died within three days from over-eating on the shelled corn. A third lot, after 21 days on a ration of shelled corn and alfalfa hay, hand-fed, was self-fed on a ration of ground corn and cut hay, mixed in the same proportion as the corn and hay were fed to the lambs in Lot 1. Each lamb in this lot ate an average of 1.44 pounds of corn and 1.91 pounds of hay daily; gained 31 pounds during the 80 days on feed, or at the rate of .39 pound a day, and required 3.7 pounds of corn and 4.9 pounds of hay a pound of gain. Compared with Lot 1, this is an average of 5.3 pounds more gain in an equal length of time although .3 of a pound more corn and .2 of a pound more hay were required to produce one pound of gain. As indicated by the greater gain, the self-fed lambs were fatter than the hand-fed lambs of Lot 1 at the end of the test.

The two other lots of lambs were fed in the fields for the 80-day period, September 17 to December 6. During this time no shelter was provided for the lambs. The 50 lambs in Lot 4 were in a 5.3 acre field of corn and soybeans for 28 days. The stand of beans was poor, amounting to a 45 to 50 per cent stand. During this time the lambs gained an average of 3 pounds. For the remainder of the 80-day period the lambs had access to 1.62 acres of corn and were fed .5 of a pound of alfalfa hay daily. Eighty-five bushels of corn were available in this area. These lambs gained 21.7 pounds for the 80-day period, or at the rate of .27 of a pound a day. This is 4 pounds less gain per lamb than was secured in Lot 1, hand-fed in dry lot. The 50 lambs of Lot 5 had the run of 15 acres of alfalfa pasture and access to 1.62 acres of corn for a period of 49 days. During this time the lambs ate very little corn. They gained an average of 16.4 pounds. At the end of this time the lambs were removed from the alfalfa pasture and confined to the 1.62 acres of corn. During the 31 days that they were confined to the cornfield each lamb received .6 of a pound of alfalfa hay daily. This lot had available 75 bushels of corn. This lot of lambs averaged 25.5 pounds gain, a gain at the rate of .32 of a pound daily. This is equivalent to the gains of Lot 1.--W.G. Kammlade, assistant chief, sheep husbandry, before the thirtieth annual Farmers' Week at the College of Agriculture, U. of I.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. Mumford, *Director*.

## Pure-Line Breeding May Produce Corn More Resistant To Corn Borer

For several years the College of Agriculture, University of Illinois and the federal department of agriculture have been working on the pure-line method of corn breeding with a view to improving both the yield and quality of the corn crop. This method involves continued inbreeding, selection of inbred strains, and the recombination of these inbred strains into crosses and synthetic varieties that give both higher yields and well-matured corn.

The inbreeding is accomplished by putting sacks over the shoots before the silks appear. Sacks are also put over the tassels when the pollen begins to shed. When the silks are out, the pollen is dusted on the silks of the same plants. The shoots are covered again to prevent foreign pollen from getting on the silks. This process is continued for 5 to 10 years, using only the best plants each year.

The great majority of inbred strains are weak, easily blown over by wind and are very susceptible to smut, ear-rots and other diseases. Occasionally one out of many thousand is found that is strong and highly resistant to disease. Such inbred strains that possess superior hereditary qualities are retained to develop better strains and varieties of corn.

When two or more of these good inbred strains, that mate well together, are crossed by allowing the pollen from one to shed on the silks of the other, a great increase in yield and quality results the following year in the crop grown from the crossed seed. Altho some of these crosses and recombinations are no better than the best ordinary corn, a few are very much better. During the past five years these better crosses and recombinations have stood up where ordinary corn fell down or broke over. They also have been conspicuous in many trials in various parts of the state for their remarkable resistance to ear-rots.

Scientists, corn breeders, and practical farmers who have followed these investigations are agreed that this is the coming method of corn breeding. The adoption of this method of breeding is placing corn improvement on a firmer basis than ever before. Undoubtedly this method of breeding also may be used in the near future to develop strains of corn more resistant to injury from the corn borer. --J.R. Holbert, agronomist, federal department of agriculture, before the thirtieth annual Farmers' Week of the College of Agriculture, U. of I.

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## Many New Grain Types Produced In U. of I. Plant Breeding Studies

The following new grain types have been produced at the College of Agriculture, University of Illinois:

Ilred wheat (T. 10-110) - A selection made in 1910 from Turkey Red. Pure strain of Turkey and gives a better yield.

Illisois soybeans (Ill. 13-19) - A selection made in 1913 from Ebony. Brown bean. Hay type. Adapted to certain sections of southern Illinois.

Illini soybeans - A selection from A. K. variety. Adapted to central Illinois, and probably southern Illinois also.

Special Illinois corn strains - High Protein, Low Proteim, High Oil, Low Oil, High Ear, Low Ear, Two Ear, High Yield, and Non-Pedigree.

At present, both the method of mass selection and pure-line selection are being used in corn improvement, and in the small grains and soybeans, extensive use is being made of both pure-line selection and hybridization.--C.M. Woodworth, associate chief plant breeding, before the thirtieth annual Farmers' Week, College of Agriculture, U. of I.

## Good Crop Rotation May Work Two Ways To Increase Farmer's Profits

The profit for the farm as a whole is influenced by factors which increase its income and by those which decrease its expenses. A wise selection of crops grown may affect the farm profit in both these ways. In choosing a crop combination for profit, a considerable proportion of the rotation should consist of those crops the income of which normally exceeds their cost of production by a good margin. A profitable rotation should also provide suitable feeds for livestock kept. Balanced home grown feeds are cheaper than purchased feeds, and their utilization on the farm by livestock increases the size of the business. Again a profitable rotation should provide for maintaining the fertility of the soil that the production may be permanent and not exploitive. Lastly, attention should be given to the distribution of labor and power thru the year. If high peaks occur more labor and power must be provided, and it will be used to less advantage than would be the case if the requirements were evenly distributed.

On the basis of cost records over a period of years these measures may be applied to common farm crops. The first three may be applied to the crops individually, but the distribution of labor and power applies only to the group. In central and northern Illinois those desirable from the direct profit standpoint are corn, wheat, alfalfa, and red clover, while corn, alfalfa, red clover and sweet clover are desirable from the standpoint of providing feed. These three legume crops aid in maintaining fertility. Alfalfa, because large yields and labor conflict with corn, can be used best in a smaller field rather than included in the regular rotation. Oats, though not directly profitable, find a place in rotations as a feed crop, and as a means both of distributing labor and seeding legume crops.

Three rotations meet the above requirements as well as combine to advantage the use of labor and power: (1) Corn, corn, oats (with clover), clover, wheat (with sweet clover); (2) corn, corn, oats (with clover), clover; (3) corn, oats (with clover), clover, wheat (with sweet clover). For the clover crop, either red clover or sweet clover may be used, depending on the relative demand of the farm for hay and pasture.

Crop rotations for the mixed-farming area of southern Illinois are not so well standardized. Wheat and clover are the high profit crops with timothy and redtop as cash crops in some areas. Corn is needed as an inter-tilled and feed crop. Two satisfactory profit combinations of these crops may be made: (1) Corn, wheat (with clover), clover, wheat (with clover, or clover and grass); and (2) corn, wheat (with clover and grass), clover and grass, grass (either timothy or redtop). In either case another year may be added to the rotation by leaving the clover or grass stand. The use of these combinations requires the use of limestone, a practice well justified by the results of the experiment fields in this area.--R.C. Ross, farm organization and management, before the thirtieth annual Farmers' Week, College of Agriculture, U. of I.

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## U. of I. Dairy Manufactures Short Course Gets First Woman Student

Women invaded another of the heretofore exclusive fields for men when Mrs. J. L. Greene, Downers Grove, took the short course in dairy manufactures which has just been concluded at the College of Agriculture, University of Illinois. The course has been held annually for a number of years by the dairy department of the college, but Mrs. Greene is the first woman who has ever enrolled. Twenty-four other creamerymen in addition to Mrs. Greene enrolled for all or some special part of the course. Seventeen towns in five different states were represented.

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service



Volume X February 9, 1927 Number 6

## First Agricultural Outlook Report For Illinois Ready Soon

An agricultural outlook report for Illinois during 1927, the first of its kind ever prepared by the College of Agriculture, University of Illinois, is in the final stages of preparation and will be ready for release early next week to farm advisers, farmers and other interested persons who request it. The report is based in part upon the 1927 Agricultural Outlook for the United States. It takes up the general business situation and discusses farm plans for 1927 with special reference to corn, oats and barley, wheat, hay crops, horses, hogs, beef cattle, dairying, sheep, poultry, fruits and vegetables.

Preceding the body of the outlook report will be an introduction which will point out, "Farming in Illinois, in any year, is influenced by many conditions over which a farmer has no control, but he can make use of the best information available in planning his farm production and marketing. The Agricultural Outlook, prepared by the bureau of agricultural economics, of the United States Department of Agriculture, brings together the best statistical and general information from all agricultural regions. The following statement, with special reference to Illinois conditions, was prepared by the College of Agriculture, University of Illinois and is based in part on the 1927 Agricultural Outlook for the United States.

"The purpose of this statement is to call to the attention of Illinois farmers certain facts about market demands and farm production. While there are some changes which can be made in farming from year to year, the College of Agriculture, University of Illinois believes that there is more to be gained through planning safe, well-balanced systems of farming that do not depend upon wide changes in practice from one year to the next. A short supply and high price of a farm product usually lead to relatively heavy production and low prices in the future. The farmer who follows rather consistently a well-planned system of production is usually more successful than the man who makes large shifts in production from year to year in the attempt to secure good prices. However, one must always watch for changing production and marketing conditions which may justify some permanent change in his own plans of production or marketing."

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## Veterinarians Will Meet Next Week For Annual Conference

Illinois graduate veterinarians will give first consideration to hog cholera and to cattle breeding diseases when they gather at the College of Agriculture, University of Illinois on Tuesday and Wednesday of next week for their eighth annual veterinary conference planned by the division of animal pathology and hygiene. Poultry diseases, including those of baby chicks and avian tuberculosis, also will have a place of prominence on the program. Chief among the speakers of the two-day conference will be Dr. T.E. Munce, state veterinarian of Pennsylvania, and Dr. H.E. Bemis, professor of surgery at the Iowa State College of Agriculture and Mechanic Arts, Ames.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. Mumford, *Director*.

## Thirteen Counties In On Second Corn Germination School

The second corn germination school of the season held here this week as a part of the corn improvement program of the College of Agriculture, University of Illinois drew a registration of 21 men from 13 different counties, most of whom are local leaders on the corn improvement project back in their home communities. The first school in the series of three was held during the first week in December and the third will be held next week. The program for each of these schools is aimed at control of the more serious corn diseases, which are estimated to have cost Illinois farmers upwards of $47,000,000 last season alone. Lectures and laboratories by Prof. J.C. Hackleman, Dr. G.H. Dungan, Dr. Benjamin Koehler and Dr. C.M. Woodworth, specialists on corn production and corn diseases, occupy most of the sessions. On the final day of each school, Dr. F.A. Russell, Miss Mary Elizabeth Whiteford, Prof. W.P. Sandford and Prof. A.B. Mays, of the university faculty, give a series of lectures designed to be of special help to project leaders.

After getting the latest facts on corn diseases by attending one of the schools, the local project leaders are equipped to assist their local farm advisers in acquainting other farmers and local leaders with the facts about corn diseases and the corn improvement project. This is done largely by means of corn germination schools, one of which was held for two days this week in Knox county under direction of Farm Adviser, L.R. Marchant. Similar county corn germination schools will be held in Ogle county, February 16 and 17; Peoria county, February 21 and 22; Marshall-Putnam counties, February 24 and 25; Piatt county, March 1 and 2; Douglas county, March 3 and 4; Winnebago county, March 15 and 16, and Stephenson county, March 17 and 18. Woodford, Shelby, Carroll and Warren counties are in line for county schools later in the year.

Counties represented in the second corn germination school held this week at the college were Ogle, Woodford, McLean, Champaign, Logan, Piatt, Henderson, Menard, Knox, Vermilion, Tazewell, Hancock and Will.

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## Sanitation System Eliminates Risks In Raising Early Pigs

Farmers who are anxious to raise early spring pigs but who have held off because they were afraid of the risks supposed to be involved in this practice will get real encouragement from reports of farmers who last year cooperated with the College of Agriculture, University of Illinois and their county farm advisers in conducting swine sanitation demonstrations, says E.T. Robbins, livestock extension specialist. Last winter the February litters raised by these swine sanitation cooperators were larger than those litters raised in later months.

Records of 160 swine sanitation demonstrators who sent in written reports show that they had 486 pigs farrowed in February of which 6.7 pigs a litter were raised, Robbins pointed out. In March they had 7,601 pigs farrowed and raised 6.2 pigs a litter. In April they had 4,489 pigs farrowed and raised 6.3 pigs a litter. In May and later they had 868 pigs farrowed and raised 6.5 pigs a litter.

"These records show that last year more than half of the pigs on these swine sanitation demonstration farms were farrowed in March and that the size of the litters raised from those pigs was somewhat smaller than for any other month. When litters were farrowed in April the size of the litters raised was practically the same as for March. The May litters and those which were raised later were somewhat larger than for March and April but still not so large as for February.

## "Corn Borer Preparedness" Practiced For Years In Illinois

In the excitement created by the recent finding, for the first time, of the European corn borer in an Illinois corn field, many overlooked the fact that Illinois has for years been building up a defense against this insect, the most destructive corn pest that has ever appeared in the United States, officials of the College of Agriculture, University of Illinois point out.

For one thing, Illinois entomologists have made a close study of the corn borer from the time the insect was first known to occur in this country. Representatives of the college experiment station or of the state natural history survey have attended all important conferences held to discuss means of combating the insect and have aided directly in cleanup campaigns which have been put on in some of the infested states. Furthermore, all areas in Illinois which seemed exposed to infestation have been scouted during each of the past five years.

One of the corn borer's insect enemies, or parasites, which also will work on the smartweed borer, an insect which is now common and abundant in many sections of Illinois, has been brought into the state and several thousand liberated at points where the smartweed borer is established. This parasite was first introduced in Illinois in the summer of 1922.

In order that farmers might know in advance what the corn borer looks like and have some idea of the damage which it causes, special exhibits have been made at all the principal fairs of the state, including the state fair. A small exhibit has been used by many county farm advisers at county fairs. Mounted specimens of the insect have been furnished to all high school teachers of agriculture and to all county farm bureaus.

Three publications dealing with the insect have been printed, numerous short articles have been furnished to the agricultural and daily press of the state and mimeographed sheets have been issued from time to time giving information on the extent of damage from the corn borer. Strict quarantines have been maintained by the state department of agriculture prohibiting the shipment into Illinois of any plant or plant products which it is thought may carry the corn borer. The most recent corn borer publication of the agricultural college, which is entitled, "Learning to Live With the European Corn Borer", discusses the spread of the insect and the damage caused by it, outlines the life history of the insect and suggests approved methods for combating it. It may be obtained free by writing the agricultural college at Urbana.

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## Big Four Special Train To Stress Orchard Soil Management

Improved orchard soil management practices, now one of the most neglected features in Illinois orchards, next week will be brought before southern Illinois farmers and fruit growers by means of a special orchard train which will be operated over the Cairo division of the Big Four railway in cooperation with the horticultural department of the College of Agriculture, University of Illinois, county farm advisers and other interested agencies. The train will make 12 half-day stops at towns and cities in six southern Illinois counties and will stress approved cultural practices for the orchard by means of exhibits and demonstrations and speeches by prominent authorities. The schedule is: Mound City, 8 A.M. to 12 noon, Feb. 14; Olmstead, 1 P.M. to 4 P.M., Feb. 14; Karnak, 8 A.M. to 12 noon, Feb. 15; Vienna, 1 P.M. to 4 P.M., Feb. 15; Tunnel Hill, 8 A.M. to 12 noon, Feb. 16; New Burnside, 1 P.M. to 4 P.M., Feb. 16; Harrisburg, 8 A.M. to 12 noon, Feb. 17; Norris City, 1:30 P.M. to 4:30 P.M., Feb. 17; Carmi, 8 A.M. to 12 noon, Feb. 18; Grayville, 1 P.M. to 4 P.M., Feb. 18; Mt. Carmel, 8 A.M. to 12 noon, Feb. 19; Lawrenceville, 1 P.M. to 4 P.M., Feb. 19.

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X | February 16, 1927 | Number 7




## Livestock Situation Brightens Illinois Agricultural Outlook

Illinois agriculture faces 1927 with an outlook for profitable livestock production on the one hand and, on the other hand, a prospect of little improvement in grain prices, even if only average yields of crops are harvested, according to a state agricultural outlook report prepared by the College of Agriculture, University of Illinois and referred to in the Extension Messenger of February 9. There is no prospect for material increases in the total demand for farm products, and farmers therefore should give attention to the cost of production and prospective supply of agricultural products as they affect this state, the report points out.

In the case of horses there are only enough young animals on hand to maintain half the present number of work stock, and, furthermore, reports of farm sales indicate that the price of horses is on the upgrade, the report points out.

While present high returns in hog production cannot be maintained if there is a marked expansion, farmers in the heavy corn selling sections of the state may well consider the advisability of conservatively increasing their hog production, the report continues. There is no prospect of increased numbers of hogs going to market before late 1927, according to the report, which adds that the relative price of corn and hogs indicates the advantage to be gained this year through feeding hogs to fairly heavy weights.

For the corn belt feeder the beef cattle prospects are that another year will see sharp competition for those cattle that are just on the edge of going to market as killers or back to the feed lot as feeders. This will be as a result of the heavy selling of breeding stock and young cattle during the past year in parts of the range country, it is explained. The year, however, promises to be a good time for the man who already owns his beef cattle.

The immediate outlook for the price of dairy products is good, and a conservative expansion of dairy production in areas that can produce plenty of feed seems justified, according to the report. Sheep and lamb prices are gradually easing off, but where small ewe flocks have been profitable, farmers may well consider increasing the size of the farm flock. Egg and poultry producers in most sections may expect a fairly satisfactory year, although perhaps not as profitable as 1926.

A corn acreage in 1927 equal to that of 1926 with average yields will produce enough corn to prevent any marked improvement in corn prices, with the present supplies of livestock in the country.

It is probable that the supplies of wheat from the 1927 crop will be as large as in 1926, unless a short world crop is harvested. It points out, however, that on a long time basis, winter wheat prices are not likely to suffer as severely as corn in years of heavy United States production.

The complete detailed report is available on request from the College of Agriculture.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Takes Roundabout Route To Corn School When Other Means Fail

Refusing to be blocked by bad roads and the lack of direct-route train service, Kent Campbell, a Hancock county farmer living near LaHarpe, recently underwent a 75-mile, two-day journey for what otherwise would have been about a 35-mile, one-day round trip, in order to learn more about good seed corn and get the training that was being offered in a corn culling school held at Carthage by the College of Agriculture, University of Illinois in cooperation with Farm Adviser J.H. Lloyd, it is reported by J.C. Hackleman, crops extension specialist who had charge of the school. The roundabout route by bus and train via Goodhope and Macomb necessitated an all night stopover at Macomb on the return trip, thus doubling the time and more than doubling the distance that ordinarily would have been required to attend the school.

Campbell's determination was almost equalled by others, for in spite of the condition of the roads 51 farmers, representing 20 of the 24 townships in the county, attended the school. It was held in the nature of a training school for local leaders of the county who are cooperating with the college and Farm Adviser Lloyd in advancing the college's state corn improvement project. One man walked three miles through the mud to the railroad. Most of those attending the school, except those who had to walk long distances through the mud, brought 50 ears of corn to cull and work on in the school.

Campbell and the other local leaders began their work as cooperators in the corn improvement project last fall by selecting their seed corn in the field from the standing stalks. The 50 ears which they brought to the school with them was from this field-selected seed. At the school they were shown how to cull out the poor and diseased ears and the ears that looked as if they might be susceptible to the various corn diseases. This culling was done with the utility corn score card as a standard.

Next summer the project leaders will grow the good and susceptible seed alongside ordinary seed on their farms in demonstrations designed to show other farmers in their neighborhoods that the utility corn score card if carefully followed eliminates the poor ears. During the past three years the average yield of this good seed has been from eight to ten bushels an acre above that of ordinary seed in counties where such demonstrations have been held.

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## Forty-Two Dairymen Eligible For Gold Medals Of Honor Club

Forty-two farmers and dairymen in 14 counties of the state are eligible for gold medals as the owners of one or more cows which won a membership in the Illinois 500 Pound Butterfat Cow Club during the past year, it is announced today by C.S. Rhode, dairy extension specialist of the College of Agriculture, University of Illinois, who has charge of the club. The 42 gold medal winners are the owners of 70 dairy cows which won a membership in the select club by producing 500 or more pounds of butterfat during 1926. The object of the club, which is conducted through the cooperation of county farm advisers and interested dairymen, is to demonstrate to herd owners that good breeding, proper feeding and the right kind of care and management pave the way for economical and profitable milk and butterfat yields.

Heading the list of the 42 who are eligible to wear the coveted gold medal of the club is the owner of Rock River Farm, Byron, Ogle County. Seven cows belonging to these farms got over the 500 pound mark in butterfat production during the year.

## Sanitation Demonstrations Upset Old Idea About Farrowing Houses

Demonstrations put on last year by hundreds of Illinois farmers who cooperated with their county farm advisers and the College of Agriculture, University of Illinois in showing the merits of swine sanitation have upset another of the more or less common ideas in hog raising, it is reported by E.T. Robbins, livestock extension specialist. This idea is one that is prevalent regarding the merits of the large central house and small field houses for farrowing purposes. Farmers using the small field houses, such as are used in pastures to shelter swine sanitation pigs, raised more pigs a litter than was the case when central houses were used for farrowing purposes. This is just the opposite of what ordinarily has been taken for granted.

Records of 160 cooperators who sent in written reports of their demonstrations show that 5,258 pigs were farrowed in central houses in February and March, with an average of 6.1 pigs actually raised a litter. During the same months 2,829 pigs were farrowed in little individual houses out in the field and an average of 6.6 pigs raised a litter. The advantage of the little houses for early farrowing continued throughout the season, as shown by the records. Including the pigs farrowed in all months, there were 8,171 pigs farrowed in central houses and 6.2 pigs raised a litter. There were 5,342 pigs farrowed in the small houses and 6.5 pigs raised a litter.

"Perhaps one reason for the efficiency of the little house is the fact that each sow is secluded with her litter and is not disturbed. In a large central house there is more or less disturbance and the sows are frequently annoyed by sows or litters in adjoining pens. Whatever the reason for the advantage of the small houses the fact of their advantage is important. These houses cost much less for each sow than the large houses. Many of the most satisfactory field houses cost only about $10 a sow. Most of the large central houses cost $50 or more a sow. With lower investment and greater efficiency for early farrowing, the small field houses will become increasingly popular."

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## About Fourth Of Illinois' Livestock Now Sold By Cooperation

Cooperative livestock shipping associations in Illinois now do an annual business representing between 22 and 23 per cent of the total net value of the state's annual livestock production, it is shown by a recent survey of these shipping associations made by the College of Agriculture, University of Illinois. There are at least 15 counties in the state in which cooperative livestock shipping associations handle more than $1,000,000 worth of livestock annually, the survey shows.

Reports were obtained on 434 shipping associations during the survey and complete figures show that during 1925 these associations shipped 25,545½ cars of livestock having a total net market value of about $44,495,277.23. It is estimated that the total net value of Illinois' 1925 livestock production was about $199,000,000. On this basis the shipping associations handled between one-fifth and one-fourth of the total. Henry county, with 18 livestock shipping associations reporting, did the biggest 1925 business, according to figures announced by R.C. Ashby, assistant chief in livestock marketing, who conducted the survey. A total of 1,894 cars of livestock representing a total net market value of $3,423,852.73 were shipped out of that county. Whiteside county was second, while Stephenson county was third. Other counties in which livestock shipping associations did more than $1,000,000 worth of business in 1925 were Ogle, JoDaviess, Rock Island, Knox, Bureau, Carroll, McDonough, DeKalb, Mercer, Adams, Hancock, and Warren.

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X February 23, 1927 Number 8


## Spring Wheat Merits A More Extensive Trial In Illinois

Spring wheat, of which only about 50,000 acres are now grown in Illinois, has proved itself a far better money maker than oats, now grown on millions of acres, and therefore deserves a more extensive trial than farmers of this state have ever given it, in the opinion of crop specialists at the College of Agriculture, University of Illinois. The most recent figures available show that 46,000 acres of spring wheat were grown in Illinois in 1925 and that the crop was worth $29 an acre based on the estimated December 1 farm price. That same year there were 4,724,000 acres of oats harvested in Illinois worth, on the basis of the December farm price, $11.20 an acre.

These figures for the entire state are borne out by the results from the college's soil experiment fields. During a ten-year period, spring wheat returned a gross of $33.60 an acre on the crop experiment field at DeKalb in DeKalb county. The gross acre value of the oats crop during the same period was $26.72, or about $7 less than that of spring wheat. The gross value of the spring wheat crop here at Urbana over a ten-year period has been $30.19 an acre, or $8.51 more than that of oats. Furthermore the cost of producing spring wheat does not greatly exceed that of oats, the specialists point out.

"Not all varieties of spring wheat are equally productive, however. On both the DeKalb and the Urbana experiment fields, Marquis has proved one of the most productive varieties of which there is an abundant supply of good seed readily available. Blue Ribbon made a satisfactory record during the short time it was on trial, especially on the DeKalb field. Kota is a good wheat but probably will not be generally as productive in Illinois as Marquis. Progress made a fine preliminary showing the first year it was tried.

"Spring wheat is a cool weather crop and success with it depends largely upon getting it sown early. Date of seeding experiments conducted at Urbana showed that in central Illinois spring wheat sown March 1 or as soon thereafter as the condition of the soil permitted, gave the highest yields of the best grade of wheat. However, good yields of most excellent grain have been secured from seed sown the latter part of March. Much depends on the season.

"Old corn stalks on the surface of the ground are a source of the spores which cause scab, one of the serious diseases of spring wheat in Illinois. Therefore when spring wheat is sown on old corn ground it is well to plow the field in order to cover these stalks. Early seeding also apparently lessens the danger from scab injury.

"The college has prepared a list of growers and seedsmen who have spring wheat for sale, but of course is in no way responsible for the quality or trueness to any of the wheat listed for sale."

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director.*

## Alfalfa And Sweet Clover Should Be Popular This Spring

Seed prices this spring give alfalfa and sweet clover the call as the most economical substitutes for red and alsike clover, both of which have gone up so high in price that they are almost prohibitive, unless the buyer feels he is practically assured a crop, J.C. Hackleman, crops extension specialist of the College of Agriculture, University of Illinois, says. Sweet clover is suggested where a pasture legume is needed and alfalfa where a hay and hog pasture legume is wanted.

Red clover is always a popular legume with Illinois farmers, but this year the price of it has gone up to $26 or more a bushel of seed. This fact, together with the usual uncertainty of the red clover crop, is causing many farmers to hesitate to pay present prices. Alsike, which last year was used largely as a substitute for alfalfa, is around $5 to $8 a bushel higher than it was last year. In contrast, Grimm alfalfa is lower in price than it was last year, while Canadian variegated and common northern grown are no higher. Sweet clover seed is from $5 to $6 a bushel higher this year, but is still offered at reasonable figures.

"On all sweet soils that are adapted, alfalfa and sweet clover should be substituted for red clover, unless the farmer is positive he has conditions right for the production of this crop. The cost of red clover seed is so high that farmers can not afford to take any chances, especially since alfalfa is better than red clover in a number of respects other than price of seed. Soybeans can be used on land which has not been limed enough to insure a crop of sweet clover or alfalfa.

"Northern and northwestern grown common and Grimm and Canadian variegated alfalfa seed are recommended for Illinois. The seed can be sown like clover."

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## Low Quality Of 1926 Oats Crop Leads To A Seed Shortage

Unusually low quality of the 1926 oats crop has led to a shortage of seed oats in about two-thirds of the counties of Illinois, it is reported by R.W. Tascher, of the agronomy department, College of Agriculture, University of Illinois.

In a recent survey of the seed oats situation in Illinois, made by the national crop improvement committee, 35 counties of the state reported a need for seed oats this spring. Twenty of these counties were in the southwest portion of the state. Nine counties reported that they had enough seed, while reports from the remaining counties of the state showed both excess and shortage areas. The east central and northern portions of the state, with the exception of the extreme northeastern part, appear to be well enough supplied.

"If the seed oats on hand are of doubtful quality, germination tests should be made. Certain areas, of course, will necessarily be supplied through commercial channels. Although these commercial sources usually take care to see that a good product is delivered, farmers should safeguard themselves by knowing the germination of what they buy.

"Experiments made by the agricultural college indicate that the source of seed oats is of little importance. Results of these tests indicate that seed oats from northern regions may produce a slightly higher yield than home grown seed of the same variety, but this increased yield will not cover the extra cost involved, except in times of emergency such as the present."

## Says Spring Harness Repairs Are Best Made By Stitching

Rivets are all right for emergency repairs, but the way to get a strong, smooth job in fixing the harness before the spring plowing season is to stitch the parts together with waxed thread, says R.C. Kelleher, of the farm mechanics department, College of Agriculture, University of Illinois.

"This waxed thread is built up from pieces of shoe thread. The number of pieces, or strands, to be used will depend on the strength required, but for ordinary work three will be enough. The thread should be broken off in pieces about five feet long. When these pieces are broken the thread should first be rolled on the knee to take out the twist and then pulled apart so that the break is made with long ragged ends. Enough strands are broken to build up the harness thread and when these are assembled they are staggered, that is the end of each strand is placed about two inches short of the preceding one so that both ends of the built-up thread will have a slender taper that can be pulled through the eye of the needle easily.

"After the three strands, or whatever number is used, are laid together, the center of the built-up thread is thrown over a hook or nail in the wall, the two free ends waxed, the strands twisted into a single thread and the remainder of the thread then waxed thoroughly. A needle is put on each end of the thread and it is then ready for sewing.

"In splicing a strap by stitching, the two ends are beveled off for about three inches to a gradual taper, the flesh side of each piece being shaved off, as this is the weakest part of the leather. The two ends are then placed together in a clamp or vise with the hair side of both pieces on the same side. A hole is then made with an awl and half of the thread drawn through, leaving one needle on each side of the leather. Another hole then is made with the awl, both needles inserted in the hole from opposite sides and the thread then pulled tight by drawing both needles through. This is continued until both sides of the splice are stitched."

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## Few Owner-Operators Of Farms Leave For City Industries

Although migration from the farm to the city has been increasing for the past 60 years, comparatively few owner-operators of farms, or bona fide food producers, leave farming to take up some other industry, it is shown by a recent study conducted in Hensley township, Champaign county, by G.W. Kuhlman, of the farm organization and management department, College of Agriculture, University of Illinois. Over a period of 18 years an average of only one owner-operator in 66 left farming each year to follow some other pursuit. The total number of operators who left farming during the 18-year period was 66.

It also was found that farms in the township changed operators only once in eight years. The present operators already have occupied the farms for an average of more than nine years. Of 101 farmers in the township in 1908, 27 were still on the same farms in 1926 and 37 per cent were still in the same county. Only 4 per cent of the original group in 1908 had moved outside the county and 15 per cent outside the state. On practically one-fourth of the total number of farms, or 27 of them, there was no change of management during the 18-year period. Tenants, as a group, are a little different from owner-operators when it comes to moving and changing around. When tenants move they are likely to go to more distant points than owner-operators because they are not so firmly rooted, they are younger and also they are more likely to enter occupations other than farming."

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COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X March 2, 1927 Number 9

## Codling Moth Situation Is Challenge To All Control Methods

Alarmed by the fact that the codling moth, one of the most destructive insects of apple trees, was worse last year than it has been for a dozen seasons, the Illinois State Natural History Survey and the horticultural department of the College of Agriculture, University of Illinois this spring are urging orchardists to adopt a definite set of recommendations in order to keep down further damage by this pest. The present situation makes it especially urgent that orchardists use every possible means to check the increase and destructiveness of the codling moth, the college says in a recent announcement.

"Experiments to date indicate that arsenate of lead, the poison being used at the present time in spraying against the codling moth, is the most satisfactory of all the insecticides that have been tested, " W. P. Flint, chief entomologist, said in outlining the recommendations. "Dust applications are not recommended on apples, because experiments and observation to date show that they are not as effective against the codling moth under Illinois conditions as are the liquid sprays. To date experimental work with the summer oil sprays does not warrant making any recommendations with regard to them for Illinois. Application of the arsenate of lead spray should be made according to the regular spray schedule being recommended by the experiment station of the college of agriculture. Precautions should be taken to secure extra thoroughness in the application of all sprays, especially for the first brood of codling moth."

Under favorable weather conditions for the codling moth, such as prevailed in the fall of 1925 and spring and summer of 1926, and when the insect occurs in such abundance as during the past season, sprays alone are not usually enough to produce fruit free from worms. Additional control measures such as the banding of trees and orchard sanitation must be used. Either tar or building paper should be used for the bands which should be strips about six inches wide. The bands should be in place before the first worms have matured, usually not later than June 1 for the southern parts of the state and June 15 for the northern sections. These bands should be examined for worms and cocoons every ten days up to September 10.

"From the standpoint of orchard sanitation the orchard should be kept free from prunings, dropped apples, corn stalks and other rubbish which may act as shelter or protection for the codling moth worms. Any rubbish which is in the orchard during the winter months should be destroyed before May 1. In cases where it is practical to thin fruit, care should be taken to pick and destroy all the wormy fruit.

"Packing sheds and their contents often are the sources of heavy infestation. During the fall and winter the worms coming out of the apples seek shelter in cracks and crevices in packing sheds, in baskets, boxes and other containers. Whenever it is possible to do so, packing sheds should be tightly screened to prevent issuing moths from escaping in the spring. Containers which may contain worms should be freed of infestation or left undisturbed in moth tight sheds."

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Better Herd Plan Boosting Milk Records Above State Average

Illinois' average dairy cow has been shown up as a loafer and an expensive milk producer by the 14,000 cows that are being tested for milk and butterfat production in the 29 active county dairy herd improvement associations of the state, according to C. S. Rhode, dairy extension specialist of the College of Agriculture, University of Illinois, who has charge of these associations.

These 14,000 cows, belonging to about 755 farmers and dairymen are producing an average of about 78 per cent more milk each than the general run of cows in the state, he said. The production of these tested cows averages so much higher than the state level largely because herd owners belonging to a county dairy herd improvement association first get rid of all the "boarders", or low producers, in their herds and then feed the rest of their cows according to approved methods, Rhode explained.

Last year alone in 13 of the herd improvement associations an average of 14.5 per cent of the cows were weeded out because the records which were kept on them showed that they were paying little or no profit above the cost of the feed they ate. In one association as high as 18 per cent of the cows were sold last year because they proved to be "boarders", while the lowest percentage sold in any association was 8.

"Use of improved feeding methods by the members of the dairy herd improvement associations also has helped raise the average production of their cows above the state mark. For instance, in one of the two associations in Will county, one member was not feeding any grain at all and just by adding oats alone he increased the average milk production of his herd 20 per cent and the fat production 12½ per cent. In the Macoupin-Montgomery association one member changed his ration from corn alone to corn, oats, bran and linseed oil meal with an increase of 20 per cent in production. Similar instances of increased production through better feeding could be cited from other associations."

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## Recent Requests Show Wide Range In Calls For Information

Counts and convicts alike, as well as all degrees of society between these two extremes, apparently are making use of the information which the College of Agriculture, University of Illinois, issues on improved agricultural practices, judging from requests received at the institution.

Recently among the hundreds of other requests received daily for information and free circulars and bulletins, there came a post card from a Roumanian count asking for all available publications of the college on silos, the feeding and raising of farm animals and fowls, irrigation, dairying and cheese making, soybeans and vegetables.

These bulletins and circulars had no sooner been dispatched from the mailing room than a request was received from a prisoner in the Iowa state reformatory at Anamosa asking for all the available publications on swine and dairying. The publications were mailed promptly as the college's contribution toward aiding the young man in returning to useful citizenry. The request was written on regulation prison stationery, but none of the printed rules regarding the passage of mail between prisoners and outside correspondents affected the mailing of the publications.

## Ration Of Home Grown Feeds Helps Record Cow Win State Honor

When "Queen", a high grade Holstein cow owned by W. F. Sipp, Peoria, led the field of 70 Illinois dairy cows that qualified last year in the Illinois 500 Pound Butterfat Cow Club she demonstrated that home grown feeds supplemented with a little cottonseed meal and linseed oil meal will produce economical and profitable yields of milk, it is pointed out by C. S. Rhode, dairy extension specialist of the College of Agriculture, University of Illinois, who has charge of the club.

She produced 21,561 pounds of milk and 709.8 pounds of butterfat in 311 days to make her owner eligible for the gold medal award of the club and she did it on a ration that is a good practical one for Illinois conditions. During the year in which she made her record she ate approximately 4,880 pounds of silage, 3,131 pounds of alfalfa, 3,060 pounds of corn, 1,908 pounds of oats, 834 pounds of bran, 477 pounds of linseed oil meal and 399 pounds of cottonseed meal. In addition she was on pasture 193 days. She was milked three times daily for seven months during the year.

"In making this record, this splendid grade cow carried out the purpose of the club, which is to demonstrate the importance of well bred cows, good care and management and good practical feeding methods in producing milk and butterfat economically", Rhode said.

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## DeKalb County Farmer Most Recent Winner In Half Ton Calf Club

Fred Witt, DeKalb county farmer living near Leland, is the most recent winner of a membership in the Illinois Half Ton Calf Club being sponsored by the extension service of the College of Agriculture, University of Illinois in cooperation with interested farmers and county farm advisers for the purpose of stressing more economical beef-production, it is announced by E. T. Robbins, livestock extension specialist of the college.

The purpose of the club is to demonstrate that good breeding, proper feeding and the right kind of management pave the way for the most rapid and economical gains on beef cattle. In order to win a membership a farmer must put a weight of at least 1,000 pounds on a beef calf before it is a year old. Witt succeed in feeding a registered Hereford bull calf, Cyclone Lad 22d, for a weight of 1,056 pounds by the time it was a year old.

"The feeding of this calf is rather unusual and shows that it is possible to get rapid growth with a thrifty calf on feeds which do not load the animal with fat. The calf was not fed corn or any purchased feeds", Robbins said.

"As soon as the calf would eat it was allowed oats and silage along with mixed timothy and alfalfa hay. The silage was not continued during the latter half of the time, but the calf had continuously all the oats it would eat twice a day with timothy and alfalfa hay. When the calf's dam began to dry up the calf was put on a nurse cow and continued in this way to the end of the year. The calf had practically no grass, but was kept in a dark stall when flies were bad. It had the freedom of a shed at other times."

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College Experiment Station and Extension Service

Volume X March 9, 1927 Number 11


## Arrival of Warmer Weather Puts Premium on Cooled Milk

Now that the weather is getting warmer, milk may, over night, change from grade A, for which milk plants pay a premium, to grade C, for which there is a price cut, it is pointed out by J. M. Brannon, of the dairy bacteriology division, U. of I. College of Agriculture. This is due to the fact that germs grow faster as spring approaches and the days get warmer. Milk producing farmers therefore must keep their milk at 50 degrees or below. This temperature will not stop the growth of germs, but it will slow up the growth so that the milk can be gotten to the milk plant before there is any big increase in the number of bacteria which it contains.

"Night's milk particularly must be watched. One can of night's milk can supply enough bacteria to lower several cans of grade A milk to grade C milk. There is the case, for instance, of the farmer who was delivering five cans of milk to a milk plant and receiving a grade of C on it. Thus he did not even get average price for his milk, the average price being paid for grade B milk.

"One of the five cans of milk which he was delivering was night's milk and while the farmer thought that he had cooled it, the temperature must not have gotten much below 60 degrees. If it did get below this point it did not stay there any length of time. At any rate, when this can of milk was examined in the morning it was found to have 1,150,000 bacteria per cubic centimeter, while the highest count in any one of the four cans of morning's milk was 43,000 bacteria a cubic centimeter. The lowest was 6,000. Thus if it had not been for the single can of night's milk, this farmer probably would have received a grade of A on his milk and been paid a bonus.

"The evening following the examination, the night's milk was properly cooled and the following morning the milk was found to have but 92,000 bacteria a cubic centimeter. Facilities also were present to cool the morning's milk before delivery and in this way the bacterial content of this milk was held down to the point where the highest count in any one of the four cans was 8,700 bacteria a cubic centimeter. Over night this farmer's milk changed from grade C, for which he had been taking a price cut, to grade A, for which he received a bonus".

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## New Bulletin Suggests More Spring Wheat for Illinois

Illinois farmers need a spring-sown cereal which may displace at least a part of the oats acreage, and for this purpose spring wheat is well suited, says a new bulletin, "Spring Wheat Production in Illinois", which the U. of I. College of Agriculture has just published. The bulletin compares the returns from an acre of oats and an acre of spring wheat in different parts of the state, discusses variety trials that have been conducted with the crop in the northern and central parts of the state and takes up the rate of seeding, distance of spacing rows, date of seeding, place of spring wheat in the rotation, preparation of the seed bed, method of sowing and places where spring wheat may be grown.


Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914, [illegible]

## Old Hog Lots Dangerous Place to Put the Spring Pigs

Old hog lots, the nesting places for millions of round-worm eggs and disease germs, should be ruled out first when hog raisers are casting about for a place to raise the spring crop of pigs, says R. A. Smith, of the swine division, College of Agriculture, University of Illinois. Pigs may be able to stand lots of dirt, but it must be clean dirt, that is, free from round-worm eggs and disease germs, he pointed out. "It may be necessary to have the pigs farrowed in the central hog house in the old hog lot, but the pigs should not leave the farrowing house until they are given a clean ride to a clean pasture.

"Cleanliness in the pasture field is even more important than the kind of forage that is growing in it. Alfalfa is the premier legume hog pasture and should, of course, be used whenever possible. Red and alsike clover also are very good. Sweet clover, a legume that fits well into the corn belt rotation, is probably being used more than any other one crop. It is true that during the late summer and fall of the second year's growth that sweet clover is rather coarse and woody. However, in the fall of the first year's growth and in the spring of the second year's growth it makes a splendid forage crop.

"Sweet clover and alfalfa used together make a combination that is hard to beat. The pigs may be started in the sweet clover and then moved to the alfalfa field when they are about four months old, at which time they will be big enough so that they will not be seriously affected by round worms. This plan does away with the danger of damaging alfalfa by early pasturing and also permits the use of permanent alfalfa fields. With early spring pigs this shift may be made about the time the sweet clover is drying up in the summer. If legume pasture is not available a field of rape may be used to good advantage. This crop may be seeded alone or in combination with oats. Six pounds of rape and 45 pounds of oats an acre make a fine summer pasture".

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## New Circular Points Way to More Beautiful Home Grounds

Contrary to the popular idea, the improvement of small home grounds in Illinois is not chiefly a problem of growing plants, but an art which embodies the underlying principles of arrangement common to all the other arts, the division of landscape architecture at the U. of I. College of Agriculture points out in a new circular, "Improving Small Home Grounds in Illinois", which has just come off the press and is now ready for free distribution to interested persons.

There are about a half million rural homes and at least half again as many urban dwellings in Illinois. It was to give suggestions on the common problems of such home owners that the circular was designed, the authors state. The publication takes up general planning considerations, planting design, out-of-door furnishings, landscape construction, and care of the small home grounds. It contains many illustrations to bring out the different points made by the authors.

"People generally are coming to recognize the fact that better surroundings for the home mean greater happiness and contentment. Pride of environment is a strong and almost universal emotion, and as compared with the thousands who want to know what to do to improve their home property the person not so interested is indeed an exception".

## Illinois' Four Club Members for National Camp are Named

Winning the honor over 13,166 other farm boys' and girls' club members of the state, two boys and two girls have been named by junior club officials of the U. of I. College of Agriculture, as the state's delegates to the first national 4-H club camp to be held June 15 to 22 in Washington, D. C., as a reward to outstanding members of farm boys' and girls' clubs. Minnie Basting, 19 years old, Bloomington, McLean county; Helen Waite, 19 years old, Reynolds, Rock Island county; Joseph Bumgarner, 17 years old, McNabb, Putnam county; and Reuben Corson, 18 years old, Pleasant Plains, Sangamon county, are to be the members of the Illinois delegation.

Each state will be permitted to send two boys and two girls to the camp which will be held near one of the government buildings on the same site where soldiers camped during the civil war, the last time the grounds were used for camping purposes. The camp will follow a program arranged with the four-fold object of club work in view. To this end leadership training, club objectives, citizenship training and recreation will be stressed. Present plans are to have President Coolidge and other national figures on the speakers' program.

Illinois club members have more than a passing interest in the camp, inasmuch as the girls' outfit which was selected as standard for the camp by the national committee in charge was designed by a Cass county, Illinois, club leader and suggested to the national officials by Miss Mary McKee, girls' club work specialist at the U. of I. College of Agriculture. The outfit, designed by Mrs. J. R. Brady, Beardstown, consists of three garments made of cotton materials in the 4-H club colors of green and white and includes a middy blouse with green tie, a pleated skirt and knickers, both made of the material in green.

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## Dairymen Nominate 432 Cows For 500 Pound Butterfat Club

With the gold medal award of the club as their objective, 135 Illinois farmers and dairymen have placed 432 of their cows in the race for 1927 memberships in the Illinois 500 Pound Butterfat Cow Club, sponsored by the extension service of the U. of I. College of Agriculture, in cooperation with county farm advisers and interested dairymen for the purpose of demonstrating that economical and profitable milk yields are the result of good breeding, proper feeding and the right kind of care and management, it is announced by C. S. Rhode, dairy extension specialist, who has charge of the club.

Nominations for 1927 memberships in the club have just closed and by the end of the year the dairymen will try to get a production of 500 or more pounds of butterfat out of one or more of their cows. Those who have nominated cows for membership in the club are the members of 26 dairy herd improvement associations in 21 different counties of the state. This is the third year for the club and it is making itself felt as an influence for better dairy herd management, better feeding and improvement in general, Rhode said.

Heading the list of counties represented in the nominations is Will with 66 cows entered by 19 farmers and dairymen. Sixty nominations from six farms in Ogle county make that county a close second, while McLean is third with 39 entries. Other counties represented in the list of 432 nominations are: Kane with 36, McHenry 32, Henry 27, Moultrie 22, Knox 20, Kendall 19, Lee 17, Stephenson 17, Cook 15, DuPage 12, Peoria 10, Jo Daviess 10, Crawford 8, Adams 7, Kankakee 6, Lake 4, Edgar 4 and Tazewell 1.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X | March 16, 1927 | Number 11


## Good Beginning Made Toward "Unlocking" Illinois Soils


By R. S. Smith
Chief, Soil Physics
U. of I. College of Agriculture


(Note: This is No. 1 in a series of five articles on the Illinois soil survey. An additional article will appear each week for four weeks. This week the purpose of the survey is discussed.)

The soil survey has been given strong support ever since it was started in Illinois 22 years ago. This continued support shows a widespread appreciation of the need for as complete knowledge as can be secured of the soils of the state. The survey has become an institution in Illinois, an institution which is working quietly, without much public notice, to unravel the mysteries locked up in the soils of Illinois. A good beginning has been made in solving these mysteries, the solution of which adds wealth to the state and nation, but, we must admit, only a start. The question is frequently asked, "When will the soil survey be finished?" The only answer which can be given is, "When everything is known about the soils of the state."

The ultimate purpose of the Illinois soil survey is twofold: (1) to find out how each soil in the state may best be utilized, and (2) how each soil should be managed and treated to produce permanently and efficiently the crops which should be grown on it. It is quite clear that the accomplishment of this twofold purpose involves much more than the mere mapping of the various kinds of soils which occur. It is equally clear, however, that at least something must be known about the soils of the state as they occur in the field before they can be studied intelligently in the laboratory and on the experiment field. It is the function of the soil survey proper to get this first fundamental information. With it as a basis, the other types of soil study can be carried on and finally a more or less complete program for soil utilization and management can be devised.

To the man on the land this means a program of efficient, low-cost production. To the Experiment Station of the College of Agriculture, it means the gathering and correlating of soil facts which will help us to better understand soil and how it responds to various management, treatment and cropping practices.

In this series of short articles, attention will be given only to the soil survey proper, that is, the mapping of soils. Very rapid progress has been made during the past six years in the United States in the field study and mapping of soils. An attempt will be made in this series of articles to set down some of this new knowledge. The title of the article next week will be "What a Soil Is." It will attempt to point out the fundamental concept upon which the soil survey is now based.


Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. Mumford, *Director.*

## Tests Show White Corn Is Inferior To Yellow For Swine

White corn does not measure up to yellow corn as a feed for brood sows and weanling and fattening pigs, but the deficiencies of the white grain can be made up by supplementing it with small amounts of alfalfa meal and cod liver oil, according to results of experiments which are reported in a new bulletin just off the press at the experiment station of the U. of I. College of Agriculture. A lack of vitamin A in white corn keeps it from being as satisfactory as yellow corn for growing and fattening pigs under restricted dry lot conditions such as prevail on most corn belt farms in the winter, the experiments showed. White Democrat corn, as well as Silvermine, is deficient in this respect.

Young pigs are harder hit by the lack of vitamin A in white corn rations than are old pigs, evidences of malnutrition developing much earlier in the young pigs, the experiments showed. If pigs farrowed from sows that have been kept on such white corn rations during gestation are put on the same rations at weaning, they grow very little, if any. On the other hand, if pigs are raised on normal rations containing an adequate supply of vitamin A, they may store enough of this vitamin in their bodies to carry them through a gain of 100 to 125 pounds on white corn rations just as economically as if they were fed yellow corn. Eventually, however, malnutrition, due to the lack of vitamin A, will develop, it was found.

Brood sows raised on well-balanced rations may withstand the ill effects of the vitamin A deficiency in white corn rations for two gestation and lactation periods, but eventually their fertility is impaired. Also, pigs farrowed in the first two litters on white corn feeding may grow as fast during the suckling period as other pigs farrowed from sows on yellow corn rations. Evidently enough vitamin A is stored in the sow during a drawn-out period of adequate feeding to supply the requirements of two litters of pigs up to weaning time.

Small amounts of alfalfa meal and cod liver oil correct completely the vitamin A deficiencies in white corn rations, the experiments showed. Bulletin No. 281 which reports the experiments is being distributed to farmers and other interested persons who request it.

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## Illinois Leads In Four-Year Production Of Ton Litters

Taking the lead in the movement for more economical production of pork, Illinois farmers during the past four years have produced more ton litters of pigs than the farmers in any other state, it is shown in the official summary on the past year's results in the Illinois Ton Litter club. The ton litter idea, which is being sponsored in this state by the U. of I. College of Agriculture in cooperation with county farm advisers, is designed to show that good breeding, proper feeding and the right kind of management pave the way for economical and profitable pork production by putting pigs in shape for market at an early age. During 1926, Illinois farmers succeeded in putting a ton or more of pork on each of 90 different litters of pigs before they were six months old, thus bringing the state's total for the four years up to 358 ton litters, the summary shows. In producing the 90 ton litters, 84 farmers in 40 different counties qualified for a membership and the gold medal award of the state ton litter club. Previous to 1926, Illinois had for three years led all other states in the total number of ton litters produced annually. Last year, Pennsylvania produced about 25 more ton litters than Illinois, but Illinois still holds the four-year honors with her total of 358 litters, according to the summary.

## New Circular Points Out There Is No One Best Hen House

There is no one best poultry house for all conditions, says a new circular entitled, "Housing Farm Poultry", which has just come off the press at the U. of I. College of Agriculture and is now ready for free distribution to interested poultrymen and farmers. The flock owner can exercise his personal preference and choice in various respects without seriously affecting the practicability of the house, the circular points out.

Except for such factors as cost, convenience and appearance, every detail of construction should be considered from the standpoint of its possible effect on the health, comfort and egg production of the flock, the authors of the new publication point out. They discuss the location of the house, the different requirements to keep in mind and the actual construction of the building. Plans and drawings are given to show the different details of construction. Bills of materials for poultry houses of different sizes also are given.

Dr. L. E. Card, chief in poultry husbandry, and Prof. W. A. Foster, rural architecture authority in the farm mechanics department, prepared the circular. It is No. 315 and may be obtained without cost by writing the college.

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## Facts On Vegetable Fertilization Given In New Bulletin

Growing greenhouse lettuce and tomatoes on raised benches of brown silt loam without the use of manure does not seem feasible, according to results of experiments reported in a new bulletin, "Fertilizer Experiments With Greenhouse Lettuce and Tomatoes", which is now ready for distribution at the U. of I. College of Agriculture. Not only are the yields slight, but the quality of the lettuce is poor where no manure is used, the bulletin reports.

The experiments were promoted by the fact that during the past few years it has become more and more difficult to get supplies of manure, upon which greenhouse vegetable growers in Illinois have in the past depended almost entirely as a fertilizer for lettuce and tomatoes. It was found that satisfactory crops of greenhouse lettuce and tomatoes may be grown in a soil mixture of 4 parts brown silt loam, 2 parts rotted manure and 1 part sand by properly supplementing this mixture with commercial fertilizers. Detailed results of the experiments are given in the new bulletin, which was written by Dr. J.W. Lloyd, chief in olericulture.

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## Many Dairymen Profit By Points Learned At Feeding Schools

Approximately 1,200 Illinois farmers and dairymen, enough to make up a good sized university enrollment, this past winter took pencil and paper and attended dairy cattle feeding schools which the extension service of the U. of I. College of Agriculture held in 47 counties of the state to aid herd owners in working out balanced feeding systems that would lead to more economical and profitable milk and butterfat production, it is reported by C.S. Rhode, dairy extension specialist, who had charge of the schools. Reports of how dairymen increased their profits as much as $60 a month as a result of adopting the rations which they worked out for their own conditions while attending the schools already are being received from different counties in the state, Rhode said.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X March 23, 1927 Number 12

## Grain Doubly Poor Substitute For Lost Legume This Year

The all too common practice of replacing a clover or alfalfa crop failure with corn or a spring grain is all the more undesirable this spring, because present low prices of feed grains and the high price of hay make it especially undesirable to increase the acreage of feed grains at the expense of hay and pasture land, says R. R. Hudelson, extension specialist in farm organization and management at the U.of I. College of Agriculture.

"During the present period of low grain prices the corn belt farm should produce its own forage, thus cutting down cash feed costs and reducing expenses. Consequently spring-sown pasture crops or emergency hay crops should be substituted for the loss of an alfalfa or clover crop wherever it is possible to do so."

Substituting corn or a spring grain for a clover or alfalfa crop that has failed to make a stand not only breaks up the rotation but also adds to the rush demand for labor when grain harvest and corn cultivation demand a maximum of attention, Hudelson pointed out. The most serious result, however, is the shortage of pasture or hay for livestock.

"If the loss of a clover or alfalfa seeding is known in the fall, that is the best time to start plans for replacing it. However, spring sown crops can be ready for light pasturing by the latter part of May or the first of June.

"Since spring-sown pasture crops can be seeded as early as the ground can be worked and require no cultivation, they will disrupt the farm work less than if the same land is devoted to cultivated crops. While a mixture of red, alsike and sweet clovers sown with a light seeding of oats will give good summer pasture on land that is not deficient in lime, many people look with disfavor on this substitute. This is because the yield looks small, but records kept on spring-sown pastures have shown an average net profit per acre that compares favorably with harvested crops when costs of production are deducted.

"Likewise, emergency hay crops such as soybeans, cowpeas, sudan grass and millet do not give as cheap feed as good alfalfa or clover hay, but they usually will produce feed cheaper than imported hay and they take less cash outlay. Soybeans and cowpeas being legumes have the advantage in making better feed and disrupting the rotation less than the sudan grass or millet."

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Before the maximum fertilizing value of sweet clover can be obtained, the proper handling of the crop, particularly with reference to the time of plowing it under, must be given consideration, says the new bulletin, "Experiments in Handling Sweet Clover", just issued by the U. of I. College of Agriculture.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Modern Concept Of Soils Speeds Up Study Of Them In Field

(No. 2 in a series on the Illinois soil survey)

Very rapid recent advancement in the study of soils as they occur in the field was made possible by the modern concept of soil. Soils are now looked upon as natural bodies which have been developed from the geological and organic parent materials by the action of the weathering forces. In accordance with this view, each soil represents a stage in development and may be placed in its proper age group. Thus we have youthful, mature, and old age soils. Age is expressed in terms of stage of development and not in terms of years. Soils reach old age more rapidly in a moist warm climate than in one where the weathering forces are less active.

A sharp distinction is made between soil material and soil. An alluvial deposit is soil material, but it is not a true soil until the weathering forces which form soils have left their impress on its profile. Such a deposit may be termed an embryonic soil and if left undisturbed will pass through all the stages of soil development. On areas where erosion is intense and continuous, mature soils cannot develop. There are many such areas in Illinois.

Illinois affords an opportunity, unexcelled by any state, for studying soil formation, as all the stages in development occur within the state. When undertaken from this point of view, soil survey work becomes infinitely more than showing the location of different kinds of soil on the soil map. The work loses its routine nature and becomes highly interesting. At the same time, it becomes highly exacting and gives ample opportunity for the application of all the knowledge possessed by the survey men.--R.S. Smith, chief, soil physics, U. of I. College of Agriculture.

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## Herd Improvement Plan Makes Cast-Off Cow Record Producer

Refused even by the butchers because she was too thin, Finnie, a Crawford county dairy cow that supposedly was useless as a milk producer, has come back after a year of good care at the hands of a progressive dairyman to hang up the highest official record for milk production that has been made in Crawford and Lawrence counties during the past three and a half years. The story of how she proved her worth through the records of the dairy herd improvement association of which her present owner is a member is told in a report just sent to the U. of I. College of Agriculture.

Finnie's story opens on a Crawford county farm where she was a poor, half-starved cow that had been given up as a profitable milk producer. She was sold to a shipper, but as she was too thin for the butcher's block she was again sold to H. N. Fox, a member of the Crawford-Lawrence Dairy Herd Improvement Association. Feeding methods which the U. of I. College of Agriculture advocates through these dairy herd improvement associations were put into practice and Finnie was fed a ration which is practical under all average Illinois conditions, according to J.H. Brock, assistant in dairy extension at the college. For roughage she was given generous portions of good alfalfa hay and silage. For a grain ration she was fed a mixture of corn, bran and cottonseed meal fed according to her milk production. In return for the good feed and right kind of care, Finnie made a record in 1926 of 8,062 pounds of milk and 372.9 pounds of fat, returning $2.21 for every dollar that was invested in feed for her. F.C. Schroeder, tester for the association, says that Finnie gives promise of making an even better record this year. As a starter, she has produced during the first two months of the year 2,301 pounds of milk and 153.8 pounds of fat. This is the best record for a similar period for any cow of the two counties during the 41 months that the association has been in operation.

## Four Factors Play Part In Getting Apple Trees Into Bearing

Getting apple trees into bearing is easier with some varieties than others and on some soils than on others, it is explained by W.A. Ruth, of the pomology division, U. of I. College of Agriculture. The time when a tree comes into bearing also depends upon cultural and pruning practices, he says. A tree of a late bearing variety can be grafted over to an earlier bearing variety rather easily when it is small, but with increasing difficulty as it gets bigger. Transplanting a young tree into a more favorable soil can be done, but it is by no means as practical as selecting a site which appears more favorable before the original planting. To promote early bearing the soil should be of moderate, but not excessive fertility.

"Cultural and pruning practices, in contrast to variety and soil, can be changed easily. Cultural practices should be designed to induce very vigorous growth in the first years after planting and less vigorous growth later, at the time when the variety should bear its first crops. Very young apple trees invariably should be cultivated during the growing season, although the cultivated area around them does not need to be large. They can, also, be fertilized lightly with quickly available nitrogenous fertilizers, such as ammonium sulfate or sodium nitrate or with manure. Fertilization should be stopped two or three years before the bearing age. Cultivation should preferably be kept up, although it may be necessary to stop it if the growth is still vigorous. Whether it will be necessary to stop cultivating will, of course, depend upon the other factors concerned, particularly the richness of the soil and the tendency of the variety to bear late.

"Generally the more severely a tree is pruned the later it will bear. However, this does not mean that a young tree should not be pruned. It is only in the earliest years that a tree can be formed properly. The heavy pruning should be done in the two or three years after planting. During that time a few main framework branches should be selected and developed and others should be removed or suppressed, so that severe pruning will not be necessary later."

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## New Facts Reported On One Phase Of Corn Disease Problem

Investigations recently completed by George H. Dungan, assistant chief in crop production in the experiment station of the U. of I. College of Agriculture, throw new light on one phase of the corn disease problem about which little has heretofore been known. The particular phase of the problem involved in the investigation deals with the factors that influence the physical composition of the endosperm, or the carbohydrate reserves, in corn grain. Detailed results of the studies are reported in a new bulletin,"The Influence of Plant Injury and the Root Rot Diseases Upon the Physical and Chemical Composition of Corn Grain".

For a number of years the Illinois station has advised farmers to throw out all extremely "starchy" ears from their seed stock. This recommendation is based upon results which the Illinois station and the federal department of agriculture obtained in a cooperative investigation of the causes of corn rot diseases. No data, however, have as yet been obtained as to why corn carrying a large proportion of soft starch is more susceptible to disease infection than corn containing a smaller proportion, and very little direct knowledge is available as to the factors that influence the composition of the endosperm in corn grain. Results of the investigations indicate that the character of the starch in the endosperm of corn grain may be influenced to a perceptible degree by the environment in which it is produced.

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X March 30, 1927 Number 13

## W. C. Coffey Will Address All Ag Get-together Banquet

W. C. Coffey, graduate and former staff member of the College of Agriculture, University of Illinois, who is now dean of the Department of Agriculture, University of Minnesota and director of the Minnesota Agricultural Experiment Station, has been secured to make the principal address at an all ag get-together banquet to be held April 11 in Wesley Foundation in connection with the annual students' livestock judging contest of the U. of I. College of Agriculture. The contest is to be held Saturday, April 9, in the livestock judging pavilion and the winner's prizes awarded the following Monday night at the banquet. Dean Coffey was graduated from the U. of I. College of Agriculture in 1906 and for 15 years thereafter was a member of the staff of the animal husbandry department. Three years after graduation he received the degree of master of science in agriculture. Previous to his leaving the institution in 1921 to accept his present position, he was for one year acting head of the animal husbandry department.

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## Lime, Sweet Clover Double Southern Illinois Corn Yield

Running true to form as an aid to more economical crop production, the Illinois plan of limestone and sweet clover for soil building has more than doubled the yield of corn on four soil experiment fields maintained in the southern part of the state by the agronomy department of the U. of I. College of Agriculture, it is shown in figures just compiled by C. J. Badger, of the department. The fields are located at Ewing, Toledo, Raleigh and Enfield. On these fields land that was treated with limestone and sweet clover, plowed under as green manure, made slightly more than 34½ bushels of corn as an average annual yield for the four-year period ending in 1925. In contrast, land on the same fields that was not treated made an average yield of slightly less than 15½ bushels of corn an acre. The increase was a shade more than 19 bushels an acre, or considerably more than double.

Last year the land on these four fields that was handled under the limestone and sweet clover plan made an average of almost 12 bushels of corn an acre more than land on the same fields that was not treated. On the Raleigh field, for instance, the treated land last year made 38 bushels of corn an acre while the untreated land produced only 20.8 bushels an acre. On the Toledo field the lime-clover treatment boosted the yield to 24.6 bushels an acre, while the untreated land made only 11.6 bushels an acre. The average for the four fields for the year was 30.8 bushels of corn on treated land and 19 bushels an acre on the untreated, a difference of almost 12 bushels. On these fields the sweet clover which is used as a green manure is seeded in the wheat in a rotation of wheat, corn, oats and clover. No crop is lost on account of growing the sweet clover as a green manure crop, since the corn follows the wheat and the sweet clover in the wheat is plowed under for the corn, Badger pointed out. This system of soil treatment not only is economical, but also gives results, he said.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. Mumford, *Director*.

## LaSalle Farmer Demonstrates Practical Corn Improvement

Many Illinois farmers could start with the corn they already have on their farms and build up both the quality and germination of their crop without bringing in a single ear of fancy seed stock, it has been demonstrated by Oscar Olson, a LaSalle County farmer living near Peru, who has been cooperating with Farm Adviser W. W. McLaughlin for the past two years in carrying on the corn improvement project of the U. of I. College of Agriculture. As proof of what he has been able to accomplish in those two years by carrying out the recommendations of the project, Olson's 1926 corn this year germinated 98.5 per cent, an improvement of 2.5 per cent over the average germination of his 1925 corn. This is all the more striking when it is considered that this is a season in which many farmers are having trouble with the germination of their corn, J. C. Hackleman, crops extension specialist of the college, points out. The person who made the germination test on Olson's corn reported that it was one of the best lots of seed he had seen this year.

Further evidence of the improvement which Olson has made in his corn is to be found in the results of the disease test. Corn from his 1925 crop tested 32.2 per cent disease free, 38.2 practically disease free and 29.5 per cent badly diseased. In contrast, corn from his 1926 crop tested 40.5 per cent disease free, 43.2 per cent nearly disease free and 16.3 per cent badly diseased.

Olson attended the first seed corn culling school held in LaSalle county in March, 1925, at which time the corn improvement project was launched in that county. That same year he discovered that the corn from seed which he culled by the method learned at the school produced a much better quality of corn and matured considerably ahead of corn from seed which he bought to finish out his 1925 acreage. In the fall of 1925 a demonstration on the field selection of seed corn was held on Olson's farm. The following spring he culled his selected seed thoroughly and had it tested for disease. This culled and tested seed yielded slightly more than 10 bushels an acre more than seed which had not been so culled and disease tested. Last fall, Olson attended another demonstration on the field selection of seed corn and it was the seed which he selected and culled after attending this demonstration which this spring gave an average germination of 98.5 per cent.

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## Many Farmers Plan To Stress Economy Of Pork Production

Turning to economy of production as a means of bolstering their incomes, interested farmers in 42 Illinois counties are cooperating with their county farm advisers and the extension service of the U. of I. College of Agriculture in a new state-wide project which the college has just launched for the more economical production of pork on farms of the state. In order to demonstrate to their own satisfaction and to their neighbors that this economy can be brought about through the proper balancing of corn and other farm grown grains, those who are cooperating in the new project will follow a definite system of feeding outlined by the agricultural college. E. T. Robbins, livestock extension specialist, is in charge. The project has just been launched through the holding of schools of instruction at which 1,303 farmers in 38 counties were given pointers on methods of feeding their hogs so as to balance corn to the best advantage. These schools were in charge of animal husbandry staff members from the agricultural college and in most cases the men who attended are those who will cooperate as demonstrators in the new project. In the four other counties the farm advisers themselves have started the cooperators on their feeding work. Counties which have taken up the project are Adams, Bureau, Brown, Cass, Carroll, Clark, Douglas, DeKalb, DeWitt, Edwards, Gallatin, Grundy, Hancock, Henderson, Henry, Iroquois, JoDaviess, Knox, Lake, LaSalle, Lawrence, Lee, Macon, Macoupin, Marshall-Putnam, McDonough, McLean, Moultrie, Montgomery, Morgan, Ogle, Peoria, Rock Island, Saline, Schuyler, Shelby, Stark, Vermilion, Wabash, Warren, Woodford and White.

## Different Soils Are Known By Their "Profiles," Norton Says

No. 3 in a series on the Illinois Soil survey
E. A. Norton
Soil Survey Mapping
U. of I. College of Agriculture

Soils are separated from each other on the soil map because their properties are different. These properties are recorded in the profile and may be observed by carefully examining the features of the profile as they occur in the field. In making this examination, two well-known tools are used, the pick and shovel. The soil auger is of little value in making this examination because some of the most important soil features are destroyed in the sample brought up by the auger. The features of the soil type are thoroly studied by digging holes and examining the freshly exposed, undisturbed horizons making up the profile. After this has been done, then the soil auger is used to determine the boundaries of the type.

In a freshly exposed vertical section, or soil profile, the most striking characteristic is its arrangement into layers, zones, or horizons. In mature soils these horizons are distinct. Their succession, depth and thickness are very important characters in differentiating soils. In each horizon the characters considered are: the base color with its variations, such as mottling, streaking, or spotting of other colors; the texture or physical composition; structure or arrangement of particles; consistency, a measure of the pasticity, compaction, or friability; the form, amount of and state of mineral concretions, such as iron and lime; and the presence of shells and salts. All of these characters cannot be quantitatively measured as yet, but work now in progress on methods will undoubtedly make this possible in the near future.

Further characters considered in the profile as a whole are: the amount of leaching, as indicated by the calcareous or acidic nature of the horizons; the distribution of plant roots; the character of the remains left by insects and animals; the degree of oxidation; and the relationship of these characters one to the other. Other characters, such as the amount of organic matter present which largely controls soil color and chemical composition, are not considered directly as yet, except as they modify some of the above-mentioned characters. The depth of the substratum is considered to at least six feet below the surface because of its influence on drainage and on the character of root growth.

The most important thing in mapping soils is to recognize soil characters, that is, to be able to see what is there to be seen in every soil profile. The next most important thing is the measurement and description of the features seen. Finally, the soil types as finally defined must be classified and their location indicated on the soil map.

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## Proven Cows Outyield Average Cow Of State 70 Per Cent

Proving their worth as efficient milk producers, the 243 cows owned by the 21 members of the Kendall County Dairy Herd Improvement Association this past year outdid the production of the average Illinois dairy cow about 70 per cent, according to a summary of the association's 1926 records which has just been made by J. H. Brock, assistant in dairy extension at the U. of I. College of Agriculture, the sponsor of these associations. The Kendall county cows finished the year with an average production of 6,637 pounds of milk and a shade more than 273 pounds of butterfat each.

Records of the association bear evidence of the value of balanced rations, for both the highest producing and the most profitable herds were fed a balanced ration throughout the year, Brock pointed out.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X April 6, 1927 Number 14



## Manure Does Work Of Potash On Southern Illinois Land

Results from the southern Illinois soil experiment fields of the U. of I. College of Agriculture indicate that the use of ordinary farm manure does away with the necessity for commercial potash on farm land in that section of the state, according to figures compiled by M. A. Hein, of the college agronomy department. Only on corn does commercial potash give paying increases in crop yields when used in southern Illinois and increases almost as big as those from potash have been harvested by using manure, his figures show.

As an average for ten of the southern Illinois fields, land treated with crop residues, limestone, rock phosphate and potash made 48.6 bushels of corn an acre, while land treated with limestone, rock phosphate and manure made 46.4 bushels of corn an acre as an average for the same years. The manure in the latter case was the only material used which supplied potash.

On one of the typical southern Illinois experiment fields, the one at DuBois, land treated with lime and potash did produce 25.7 bushels of corn an acre in contrast to 18.7 bushels an acre from land treated with lime and phosphate in the form of bone meal. However, the wheat crop on this same field averaged only 16.7 bushels an acre for the lime and potash treatment as compared to 20.7 bushels an acre for the lime and phosphate treatment. This was a difference of four bushels an acre in favor of the phosphate. Oats and legume crops on this field show slight increases in favor of the phosphate over the potash, according to Hein.

These results from the DuBois field are borne out by the average crop yields from 12 other southern Illinois experiment fields. On these 12 fields, land treated with sweet clover, limestone and rock phosphate made 39 bushels of corn as a four-year average. When potash in the form of 200 pounds of kainit an acre was added to this treatment the corn yield went up to 48.3 bushels an acre. However, the increase in the wheat yield as the result of the added potash treatment was only 2.9 bushels an acre, while the oats crop made an additional 2.8 bushels an acre as a result of the added potash. Soybeans and clovers made only very small increases where the added potash was used. Increases as small as these for the crops other than corn indicate that potash is used at a loss on such crops, Hein said. In the absence of manure the use of potash salts for corn, especially on land on which sweet clover has grown, may be a profitable investment for many farmers in southern Illinois.

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## Get-Together Banquet Tickets Available in Room 113

Staff members and others interested in getting tickets for the all ag get-together banquet to be held in Wesley Foundation the night of April 11 with Dean W.C. Coffey, of the Department of Agriculture, University of Minnesota, as the speaker can obtain them in Room 113, the information office, in the new agriculture building.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. Mumford, *Director*.

## Many County Fairs Try To Bill Horse Pulling Contests

Horse and mule pulling contests, which are putting new life into Illinois county fairs, are a much sought after feature by fair officials and close to a score of such contests will be scheduled for the coming season when the list of dates is finally completed, it is announced by E. T. Robbins, livestock extension specialist of the U. of I. College of Agriculture, who has charge of the contests. Twenty-eight fairs have applied for contests for the coming season and dates already have been settled for five. Because of conflicts it probably will not be possible to accommodate more than 18 or 20 of the fairs which are applying, Robbins said.

Fair contest dates which already have been fixed for this season are: Danville, August 8; Decatur, August 15 and 16; Princeton, August 30; Lafayette, September 7, and Tuscola, September 16. Popularity created by the contests when they were held in Illinois for the first time last year is responsible for the interest which is now being shown in them, according to Robbins. Nine contests were held last year at the Danville, Lewistown, Macomb, Princeton, Lafayette, Mazon, Mendota, Cambridge and Tuscola fairs.

The college's dynamometer, a patented device for measuring the pulling power of draft animals, is used in all these contests. The idea is to find and demonstrate the good points of superior pulling animals.

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## Cows Made To Prove Their Worth On 800 Illinois Farms

With the recent organization of a dairy herd improvement association to serve Brown and Schuyler counties, combined, Illinois now has 31 of these associations in which approximately 800 farmers and dairymen are getting definite help and information toward the more efficient management of their dairy operations. The state's newest dairy herd improvement association was organized through the activities of Farm Advisers W. P. Miller and L. E. McKinzie, of Brown and Schuyler counties, respectively, with the assistance of J. H. Brock, assistant in dairy extension from the U. of I., College of Agriculture, the institution which sponsors these associations.

"Members of dairy herd improvement associations know definitely the milk and fat production, and the cost of feed and profit over feed costs for each cow in their herds and the herd as a unit," Brock pointed out in assisting with the organization of the new association. "From such information each member has a business basis for selecting the right cows to keep, boarder cows to cull and calves to raise for replacement or sale as surplus stock. Furthermore, from the tester who is hired by the association each member gets help on feeding, balancing rations and general dairy herd management problems. Checking up on the skimming efficiency of separators, proving the reproductive ability of sires and stimulation of desirable competition among members are among other advantages."

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## Logan County Launches Campaign For 10,000 Acres of Alfalfa

Ten thousand acres of alfalfa - an acre for every dairy cow in the county - is the goal which Logan county farmers have set for themselves this year. The plan is aimed at the probable invasion of the European corn borer into Illinois by reason of the fact that it paves the way for a reasonable diversification of crops away from corn and at the same time it will go a long way toward solving the feed problem of many farmers in the county, J. H. Checkley, Logan county farm adviser, explained.

## New Central And Northern Illinois Soil Types Described

During the past three years a few new soil types have been recognized and mapped in Illinois. The increasing appreciation of the importance of the subsurface and subsoil horizons in determining the characteristics of soils and their agricultural value led to the conclusion that a number of our soil types were made up of two or more types. The new types established are, for the most part, easily recognized in the field, since they are generally very closely correlated with topography and are always defined by definite, easily seen features in the profile. As knowledge increases, it will undoubtedly be true that additional types will have to be established, and, moreover, it is likely that it may be possible to combine certain types, though at the present time the possibility of such combinations seems very limited.

The new types which have already been established were decided upon because the soil maps as now published do not tell the truth about the soil as well as it can be told. The inadequacy of the maps is emphasized particularly by former members of the soil survey staff who are now using them constantly in land valuation work. The opinion of these men is that while the maps are exceedingly valuable, yet they can be improved very greatly by making a few additional separations. This opinion was concurred in by the soil survey staff after a careful study of the situation.

It seems clear that as our knowledge of soils increases, changes in our classification will be necessary. These changes will ordinarily be merely the addition of a new type or the combination of two or more previously recognized types into one type. Such changes are the price of progress and are to be expected. Their absence would indicate a failure on the part of the soil survey staff to take advantage of new knowledge in their field of work.

Brown silt loam, as it appears on the published soil maps at the present time, occurs extensively in central and northern Illinois. This old familiar type name covers such a wide range of soils that it has little significance. The name has consequently been limited to one of the several kinds of soil formerly called brown silt loam and new names have been devised to apply to the new types which have been split off from the old brown silt loam. Three of these new types are described briefly below in order to bring out the practical importance of mapping a soil as soon as it is recognized and defined, even tho it involves establishing a new type. The three described will serve to illustrate the basis for making the new separations.

1. Light brown silt loam - characterized by a light brown surface, and a friable, easily permeable, reddish brown subsoil. Well surface and underdrained. Occurs particularly well developed in northwestern part of the state. Its parent material is loess. Potentially less productive than heavier land.

2. Brown silt loam - has a brown surface, a slightly heavier subsurface and a slightly compact, mixed gray and yellow subsoil. Occupies intermediate topographic positions and occurs extensively in the northern half of the state with the exception of the east-central part. Loess is its parent material. Potentially a productive soil.

3. Brown silt loam on clay - has a dark brown surface, a black subsurface with a gray cast, and a heavy drabbish colored subsoil. Occupies relatively level land. Very productive when well drained and well farmed.

Next week a few of the new types recently established in southern Illinois will be briefly described. --R.S. Smith, chief, soil physics, U. of I. College of Agriculture.

(No. 4 in a series on the Illinois soil survey)

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X | April 13, 1927 | Number 15




## Start Tests To Fortify Corn Profits Against Borer Attacks

With the smoke of Illinois' first actual combat with the European corn borer just clearing from the infested region in Kankakee county, investigators of the U. of I. College of Agriculture have set themselves to the task of working out ways and means whereby farmers of the state can grow corn at a profit in spite of future infestations, which now seem inevitable. Two departments - farm mechanics and agronomy- have taken the burden of the task. New strains and varieties of corn that are especially adapted to corn borer conditions, cultural practices that will aid in the growing of this adapted corn and methods of handling and cleaning up corn land for the maximum control of the borers are being sought as the chief aids toward making corn a paying crop in Illinois even if the entire state should be overrun with the borers.

The farm mechanics department has gathered together a complete outlay of existing machines for corn borer control. These will be tried out under actual field conditions to find the most practical types of machinery and field practices for killing borers. About the only machine not represented in the collection is the special corn bombine, of which only one has been manufactured. It picks and husks the ear and shreds the stalk into bits. Special wide-bottom plows that are supposed to turn a cleaner furrow than the narrower bottoms, corn binders with special low cut attachments and a dozen or more other machines, such as rotary "hoes", combined soil pulverizers and rollers, special disc harrows, rotary harrows, corn stalk dump rakes, side delivery rakes, tractor harrows and stubble pulverizers, all having some special feature for corn borer control, will get a chance to show their worth under Illinois conditions. In addition, the farm mechanics department is preparing to launch an investigation in which it will be possible to compare 100 different combinations of preliminary cleanup, seed bed plowing and seed bed preparation. Comparisons of different methods of planting, cultivating and harvesting corn and the development and improvement of machinery for corn borer control are other objectives of the project.

"Economy of production as well as effective control will be the thing sought in this study, for if the farmer can grow corn cheaper, even if there is a little loss from the borer, the crop can still be grown at a profit in Illinois," E. W. Lehmann, head of the farm mechanics department, said.

Corn breeding and production specialists and soil fertility experts are launching an extensive investigation with nine main objectives. The chief lines of attack will be the finding or breeding of varieties of corn that can be planted late and yet mature a good crop of sound corn, the finding or breeding of varieties of corn that show least susceptibility to corn borer injury, late planting to escape the corn borer eggs, thicker and closer planting to avoid corn borer injury and soil treatment for speeding up the maturity of late planted corn. Definite phases of this investigation will be allotted to the experiment fields now maintained by the college at Urbana, DeKalb, Minonk, Joliet and Sidell and probably to other special fields later, according to present plans.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. Mumford, *Director.*

## Land Prices Nearest In 15 Years To Permitting Fair Return

Agriculture, the country's "sick" industry, is given some encouragement from the standpoint of the future Prof. H.C.M. Case, in charge of the farm organization and management department at the U. of I. College of Agriculture, who points out that land prices now are nearer a basis on which a fair return can be made on the investment than has been true for 15 or more years. Some farmers are making money without marking land down as low in value as it is selling at the present time. Good managers should be able to make money on land valued at the price at which good land is now changing hands just as soon as they have a chance to put it in productive shape, he said. Aside from this one hopeful sign toward recovery, agriculture as a whole is still at a serious disadvantage compared with other industries, he pointed out. Furthermore, there is no denying that many who bought land in recent years have lost heavily from the drop in price, he added.

"This is the first time that central Illinois has gone through a serious reversal in land prices. Up to 1920 land in central Illinois always had advanced quite regularly in price from decade to decade. The price paid for land was frequently higher than justified by the income from the land, because of the further expected increase in value. This opportunity for income through further increase in the value of the land has very suddenly disappeared. Land values therefore must be thought of only in terms of the income which can be made off the land.

"It is possible that the low point has not yet been reached in land prices. The threatened invasion of the corn borer into Illinois is likely to push land values farther down than they should go. Nevertheless, it is a safe prediction that the man who can safely judge his own managing ability and who is a capable manager may find farming pays on the basis of present prices at which land is selling."

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## Untrimmed Feet On Horses Waste Much Power In Spring Work

Many horses are being pressed into the rush of spring work with a serious handicap in the form of badly neglected feet cutting down their worth as steady, efficient motive power, according to C. W. Crawford, of the horse husbandry division, U. of I. College of Agriculture. Trimming a horse's feet is a simple job and can be done in a short time on any rainy day, he says.

"Most of the horses now carrying the brunt of the spring work have been idle all winter and have run around straw stacks where the footing is soft. Consequently, their feet are grown out too long and need trimming. A horse with an excessively long foot is carrying extra weight and extra weight on the foot is very fatiguing. Such a horse also is clumsy and his tendons and muscles are under a constant strain. Thin, soft horses especially need all the strength they have to do a full day's work and should be given the advantage of any aids which are practical.

"The easiest way to trim a horse's feet and a way that gives good results is with a mallet and chisel. A chisel about an inch wide is the best size. The horse should stand on a solid plank floor and the foot left on the floor as it is being trimmed. The chisel should be held vertical and the cut made straight down. With a little practice the person doing the job can make the edges round and smooth. This method puts a blunt edge on the hoof which will not break or split as easily as would a sharp edge such as is produced when the foot is being prepared for shoeing. However, in a few cases the bottom of the foot may be worn off unevenly. To remedy this the hoof must be picked up and a rasp or pincers used to level it."

## Changes In Southern Illinois Soil Classifications Explained

No. 5 in a series on the Illinois soil survey

The new soil concept has led to some changes in the classification of the soils in southern Illinois.

In the old grouping, the upland soils of southern Illinois were divided into timber and prairie on the basis of vegetative cover. As vegetative cover is not a soil character, this grouping is no longer used. These same soils are now placed in the light-colored group. Three soil types were formerly included in the old upland timber soil group. The type, light gray silt loam on tight clay, has been retained but is strictly confined to the very flat, level, and very poorly drained areas. The old inclusive type, yellow-gray silt loam, which was mapped on the undulating and rolling areas, has been divided into four types: yellow-gray silt loam on tight clay is now mapped on the nearly level and flat, poorly drained areas; yellow-gray silt loam on compact medium-plastic clay, on undulating, fairly well-drained areas; reddish yellow-gray silt loam, on the rolling, well-drained areas, and reddish yellow silt loam, on the very rolling and well-drained areas. The eroded or broken areas which were formerly mapped as yellow silt loam included the washed and gullied land. Little, if any, profile development can be found in these areas and they are now classed as yellow silty, sandy, or gravelly loam, depending on their texture.

The old prairie group in which the type, gray silt loam on tight clay, predominated has been divided into four types on the same basis as that used for the separation of yellow-gray silt loam into four types. These types are listed as follows: deep gray silt loam on tight clay, gray silt loam on tight clay, gray silt loam on orange-mottled tight clay and yellowish gray silt loam on orange-mottled tight clay. They can be differentiated on the basis of topography and drainage, as has been previously noted. The type, deep gray silt loam, is mapped at the base of slopes and in depressions which receive wash from the surrounding higher land. The profile in such areas shows little or no development because erosion is continually adding new material.

A formation which is peculiar in that it cannot be correlated with the normal profiles developed in the region has recently been recognized in this area. It is called the slick spot for want of a better name and more information about it. It ranges from small spots of a few square feet to areas several square miles in extent. Bare salty spots result when the slick spot development is on or very near the surface. These spots lower the agricultural value of the land to a greater or less degree depending upon their stage of development. -- E.A. Norton, soil survey mapping, U. of I. College of Agriculture.

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## Aeroplane Dusting Of Illinois Orchards To Get First Trial

Aeroplane dusting, the latest thing in orchard insect warfare, is to be demonstrated for the first time in Illinois in the afternoon of April 23 when a St. Louis aircraft corporation will stage a demonstration in the peach orchard of Perrine Brothers, one mile southeast of the business district of Centralia, according to an announcement by W. P. Flint, chief entomologist of the Illinois State Natural History Survey, which is cooperating with the corporation on the event. Ground sulphur mixed with arsenate of lead will be the poison applied to the orchard. It will be ground fine enough to pass through a 300-mesh screen and is being furnished by a St. Louis acid and sulphur company. Weather permitting, the demonstration will start at 1:30 o'clock in the afternoon.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X April 20, 1927 Number 16


## Farmers Might Improve Present Status By Paring Fencing Costs

Fencing costs have been found to vary all the way from $1.82 to 29 cents an acre a year on different farms in one section of the state. This item of expense therefore is one that the thrifty farmer might well examine in this period of unequal balance between farming and other industries, it is pointed out by J. C. Bottum, of the farm management department, U. of I. College of Agriculture. A variation of this much in fencing costs would make a difference of $300 a year on a 200 acre farm, he said. The variation cited is for 16 Knox and Warren county farms on which the farm management department obtained detailed cost records. The annual expense of fencing amounted to $198 a farm, the average annual acre cost being 62 cents.

"Shape and size of fields have the most to do with the economy of fencing a farm. One fence may be made to serve where two ordinarily would be needed, if a definite fencing system is laid out to fit the farming system followed, the same as fields are planned to fit the rotation.

"Whether permanent or temporary cross fences shall be used is a question on some farms. With a temporary fence the investment in fencing is less. Also, there is no obstruction between fields and teams may pass from field to field more easily. Temporary conditions, making it necessary to utilize certain crops by livestock in the field may be met more easily. The temporary fence also keeps less land idle in fence lines. With Illinois $200 an acre land, the investment in the land which the fence occupies and prevents the use of is equal to the investment in the fence. The idle land along the fence also is a harbor for weeds and it takes lots of labor to cut them at the time of the year when there is much work to be done.

"A square field takes the least amount of fencing an acre. A straight fence is easier to keep in repair than a crooked one. The basis of any good fence is its corner or end posts. Temporary fences can be used best to advantage with hogs and sheep. Different classes of livestock require different types of fences. The growing use of rotated pastures, however, raises the question as to whether temporary cross fences are not the most advantageous even for horses and cattle. On many farms there are places where an additional fence will save its cost in labor, but idle fences make no money. Practical, economical fencing should be bought, but the cheapest fence is not always the most economical."

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Chicken raisers are fast finding that almost any shed with a stove in it isn't fit for raising chicks, and consequently hundreds of the Illinois type brooder houses will be used this year, F. P. Hanson, farm mechanics extension specialist of the U. of I. College of Agriculture, says. New 10 by 12 shed-roof, portable brooder houses built on a plan that has proved satisfactory to Illinois flock owners can be found all over the state, he said. The bulk of these houses are the result of building demonstrations staged in cooperation with county farm advisers. In addition to the large number of new brooder houses there have been a lot of old houses remodeled into up-to-date structures. Complete information on the Illinois shed-roof brooder house is given in Circular 291 which may be had by writing the college.


Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Replacement of Horses With Tractors Leaves Big Grain Surplus

Illinois farmers must find a market for an extra 6½ million bushels of corn and 12 million bushels of oats as a result of the substitution of tractors for horses and mules and the consequent drop in the number of work animals on farms of the state, it is pointed out by E. T. Robbins, livestock extension specialist of the U. of I. College of Agriculture. In the past seven years, the number of work horses and mules on Illinois farms dropped 21 per cent, the number having slumped from 1,243,500 in 1920 to 980,100 this year, his figures show.

"Illinois work animals have been eating an average of 25 bushels of corn and 45 bushels of oats each a year, according to cost account records taken by the farm management department in four representative sections of the state. The decrease of 263,400 in the number of horses and mules used on Illinois farms thus has compelled farmers to find some other market for the feed these animals might have eaten. Crops produced are as large as ever, but mechanical power units do not eat farm grains.

"It would take a concerted change in farm policy to change this market problem. Some farmers are not waiting for others to line up but instead are trying to work their own horses and mules more advantageously. Thus they are utilizing 25 bushels of grain and 45 bushels of oats for each animal, instead of selling that grain at present bargain prices. Furthermore, they pay out nothing for some other source of field power."

This attitude on the part of individual farmers has led to a lively interest in the horse hitch demonstrations which the college has been holding over the state this spring, according to Robbins. Crowds of 25 to 50 farmers have gathered at farms in Woodford, McLean and Douglas counties to learn how to hitch as many as eight horses together in one team and drive them with one pair of lines, he reported.

"In a recent demonstration at the farm of Ted Reeder in Douglas county the visiting farmers saw a three-bottom plow drawn by eight horses turning eight acres a day. The outfit had been used for the past seven years, while many other farmers have been trying to find a market for the horse feed which they raised with tractors. Reeder farms 250 acres, his brother Ralph farms 280 acres and their father farms 420 acres. They are all strong for horses, which turn farm grown feed and forage into cheap power."

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## Efficiency of "Tried" DuPage Cows Twice That Of Average Cow

Almost double the state average milk and butterfat yield was given last year by the 428 cows belonging to the 27 members of the DuPage County No. 2 Dairy Herd Improvement Association, according to a summary of the association's yearly records compiled by J. H. Brock, assistant in dairy extension at the U. of I. College of Agriculture, the institution which sponsors these associations. This is proof again that good feed and care and continued testing for production in order to weed out the poor producers go a long way toward putting the farm dairy business on a sound basis, Brock said. Herds in the DuPage county association last year averaged 8,400 pounds of milk and slightly more than 304 pounds of butterfat each, according to Brock's figures. The association can lay claim to an unusually high record for the year in that 16 of the 27 members had a herd average of 300 pounds or more of fat a cow, Brock pointed out. The top cow gave 15,506 pounds of milk and almost 636 pounds of fat during the year. The top herd for the year paid $202.84 return above feed costs, with an average of 11,850 pounds of milk and almost 443 pounds of butterfat for each cow.

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## Swine Sanitation System Weakened By Slighting Single Step

Illinois farmers following the McLean county system of swine sanitation will have about half again as many runt pigs and raise about one less good pig to each two litters if they slight as many as two of the four cleanup steps in the system, according to E. T. Robbins, livestock extension specialist of the U. of I. College of Agriculture. This has been the experience of farmers who have cooperated with the college during the past two years in demonstrating the merits of the system for the control of round worms and associated troubles of young pigs, he said.

"Written reports of 160 farmers who have demonstrated the system in past seasons show that about half of them did all of the four kinds of cleanup work suggested in the system. They scalded the farrowing houses with boiling hot water and lye; washed the sows before they were put in clean quarters for farrowing, and hauled the sows and pigs to a pasture where no pigs had been for a year and kept the pigs there until they were four months old. Under these conditions they had an average of only one runt to 83 pigs. A considerable group of the cooperators carried out only three of the four factors of cleanliness. Consequently, their pigs did not do so well. They had an average of one runt to each 71 pigs. There was a third group of farmers who used only two of the four factors of cleanliness. They had an average of one runt to each 59 pigs. In the same way the size of the litters corresponded with the degree of cleanliness with which they were raised. The men who followed all four cleanup steps raised an average of 6½ pigs to the litter. Those who did only three-fourths of the work had an average that was not quite as good as this, while those who did only two of the four suggested things raised an average of only six pigs to a litter."

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## Lime And Legumes Are Top Notch Improvers For Orchard Soils

Illinois' limestone and legume program for corn and other grain and hay crops likewise is unsurpassed for building up orchard soils, says R. S. Marsh, horticulture extension specialist of the U. of I. College of Agriculture.

"If the trees are set out on a site where the limestone and sweet clover program has not been practiced it is recommended that the grower build up his soil by growing sweet clover between the trees. The young trees must, of course, be cultivated, but this can be done by establishing cultivation strips about six feet wide along the tree rows. If apple trees are planted 40 feet apart each way and peach trees not closer than 25 feet apart there will be plenty of room between the tree rows to grow and turn under soil building crops. Although sweet clover stands at the top of the list as a soil improvement crop, soybeans, cowpeas, buckwheat and the clovers also greatly benefit the soil when turned under. Under no circumstances should these crops be taken from a young orchard and stored in the barn as hay.

"After the orchard is bearing and clean cultivation is being practiced cover crops should be grown to maintain soil fertility. A cover crop such as soybeans, cowpeas, buckwheat, millet, oats or vetch should be sown after cultivation has stopped some time between July 15 and August 1. These crops make good growth which catches and holds the leaves that fall from the trees and in the spring when the crop and leaves are disked under valuable organic matter is added to the soil. Such crops also help to prevent soil washing, hold the winter snows, protect the trees against freezing and help the tree harden its tissues for the winter. Since the total expense of putting in a cover crop usually is not more than $2 an acre, growers cannot afford to do without it when all the advantages are considered.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X April 27, 1927 Number 17


## Rothamsted Station Director To Visit And Speak In Illinois

Sir John Russell, director of the famous Rothamsted Experiment Station, Harpenden, England, and one of the leading agricultural scientists of the world, will come to Illinois May 12 during an inspection trip and speaking tour which he will make to a number of different states, it is announced by H. W. Mumford, dean of the U. of I. College of Agriculture. On the afternoon of May 12 he will address an open meeting at the agricultural college on the subject, "Eighty Years of Rothamsted Experiments," and that evening he will address the annual open meeting of Sigma Xi, honorary scientific fraternity, on the subject, "The Story of British Agriculture." Part of his time at the university will be spent in an inspection of the investigational work being carried on by the agricultural college experiment station.

Sir John's visit to this country will be made in connection with the first international congress of soil sciences to be held in Washington, D. C., June 13 to 22. His present schedule calls for lectures in Nebraska, South Dakota, West Virginia, North Carolina, Massachusetts and Rhode Island, in addition to Illinois. Special significance attaches to Sir John's visit here, since it will link the two oldest soil experiment plots in the world. The Rothamsted plots are the world's oldest ones, while the Morrow plots at the U. of I. College of Agriculture are next in line, being the oldest of their kind in the United States. They have been in operation more than 50 years. The Rothamsted experiment station of which Sir John is now director has developed a technique of agricultural investigation which has had a profound influence on farm research work all over the world.

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## Final Dates Announced For Half Dozen Farm Events At U. Of I.

With six meetings and conferences scheduled, farm interests of the state will take the stage at the University of Illinois just as soon as the regular sessions of the university end early in June. Dates for the events announced by H. W. Mumford, dean of the U. of I. College of Agriculture, are as follows:

Farm and home advisers' conference - June 6, 7, and 8
Junior club university tour - June 8, 9, and 10
Agricultural open house - June 20 to 25
Vocational high school students' judging contest - June 24 and 25
State conference for vocational high school teachers - June 27 to July 2
Junior club livestock and dairy cattle judging contest - August 8


Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

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## Field Meetings Now Scheduled For 18 Soil Experiment Fields

Eighteen of the soil experiment fields of the U. of I. College of Agriculture have been selected for half-day field meetings which will be held during the late spring and early summer to show farmers different systems of soil management that they can use as a guide in planning profitable systems of land management for their own farms, according to an announcement by Dr. F.C. Bauer, chief of the fields. The time between these two dates will be ideal for farmers to visit the fields, for the wheat will be well headed out and the oats and legumes will have made a good growth, Dr. Bauer pointed out. Those who attend the meetings will get a chance to inspect and study the crops of wheat, oats and legumes growing under different systems of soil treatment practiced on each field.

The complete schedule of the 18 meetings is: Toledo, Cumberland county, May 23; Elizabethtown, Hardin county, May 24; Raleigh, Saline county, May 25; Ewing, Franklin county, May 26; Lebanon, St. Clair county, May 27; Oblong, Crawford county, May 31; Newton, Jasper county, June 1; Odin, Marion county, June 2; Carlinville, Macoupin county, June 3; Clayton, Adams county, June 21; Carthage, Hancock county, June 22; Oquawka, Henderson county, June 23; Kewanee, Henry county, June 24; Hartsburg, Logan county, June 27; McNabb, Putnam county, June 28; Lamoille, Bureau county, June 29; Mt. Morris, Ogle county, June 30, and Joliet, Will county, July 1.

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## Up-To-Date Revision Of Dairy Cattle Feeding Handbook Ready

One of the chief causes back of unprofitable dairying is the faulty feeding of cows, Dr. W. B. Nevens, assistant chief in dairy cattle feeding at the U. of I. College of Agriculture, says in a revised handbook entitled, "Feeding the Dairy Herd", which the college now has ready for free distribution to interested farmers and dairymen. In setting up a background for dairy herd feeding practices, Dr. Nevens discusses the uses which the dairy cow makes of her feeds, the principal classes of feed, the importance of knowing the composition of feeds, the similarity between pasture and the ideal ration, the economy of home-grown feeds, the buying of concentrates, ready mixed feeds and the characteristics of feeds. A detailed discussion is then given on feeding dairy cows during the winter, feeding for advanced registry testing, feeding dairy cows during the pasture season, the care of the cow at calving time, feeding dairy heifers, feeding dairy bulls and the grinding and fermenting of feeds.

Except for furnishing too much bulk, spring pastures are an ideal ration for milk production, it is pointed out in the publication. In order to get the best rations for barn feeding the dairyman therefore should duplicate as closely as possible the characteristics which make spring pastures so desirable. Among these characteristics are palatability, digestibility, succulence, physiological effect, balance and cost.

Under most conditions a dairy herd can be fed more economically on feeds raised on the farm where they are used than it can on purchased feeds, Dr. Nevens points out. Cereal grains and non-legume roughages, however, tend to be low in protein. The dairyman who is planning to grow a part of his feed must consider, therefore, not only differences in the amounts of feed that can be secured from an acre of the crops commonly grown in the corn belt but also differences in the feeding value of the various crops.

The new publication is Circular No. 272 and may be obtained by writing the college.

## Purebred Sires Used Almost Exclusively In Herd Associations

Better dairying methods being followed by the 900 or more members of dairy herd improvement associations in Illinois have sounded the death knell for scrub and grade sires in the herds of these members, it is shown by a survey recently made by C. S. Rhode dairy extension specialist of the U. of I. College of Agriculture, who has charge of these associations. It was found that 94.5 per cent of the sires being used by association members as herd sires are purebreds. For the state as a whole, purebreds make up less than 20 per cent of the dairy herd sires, Rhode said.

Members of the associations not only are using a high percentage of purebred herd sires but also the animals in most cases come from dams with big production records. The records of these dams run as high as 1,300 pounds of butter in a year. Furthermore the association members are keeping the sires long enough to prove their worth and in this way many good bulls that might otherwise be disposed of if their worth was not known will be saved from the shambles, Rhode pointed out.

Associations are operating in Lake, Boone, McHenry, Stephenson, JoDaviess, Ogle, Kane, DuPage, Cook, Will, Kankakee, Kendall, Lee, Whiteside, Henry, LaSalle, Knox, Adams, Hancock, Peoria, Tazewell, McLean, Champaign, Vermilion, Edgar, Moultrie, Crawford, Lawrence, Macoupin, Montgomery, Brown and Schuyler counties. Others are being formed in Iroquois, Clay, Effingham, Washington, Monroe, Randolph, Madison, Bond and Fulton counties.

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## Cheap Hog Equipment Produces Results Under Swine Sanitation

Cheap hog raising equipment, an aid to economy in pork production, has come into its own under the swine sanitation system now being followed by farmers and hog raisers throughout Illinois, according to E. T. Robbins, livestock extension specialist of the U. of I. College of Agriculture. Last year, small, inexpensive field houses were highly satisfactory as farrowing quarters all through the spring season. This year thousands of these small field houses have been built by farmers who are using the swine sanitation system. These houses can be seen scattered over the pasture fields in all parts of the state, Robbins reports. "These cheap field houses got a chance to prove their worth because many of the farmers who cooperated with the college and their county farm advisers in demonstrating the swine sanitation system had no central houses for farrowing purposes. They had to put the sows in the little houses out in the clean fields, a plan which was even more successful than had been expected.

"Including all the pigs which were farrowed last spring and reported from 160 farms on which swine sanitation demonstrations were conducted, the farrowing season extended from February to June. Out of all the pigs farrowed in central houses, 8,171, or an average of 6.2 pigs a litter, were raised. In the case of the pigs farrowed in small field houses, 5,342, or an average of 6.5 pigs a litter, were raised. The showing for the small field houses was even better when only the first two months of the farrowing season were considered. Out of all the pigs farrowed during February and March in central houses, a total of 5,258, or an average of 6.1 pigs a litter, were raised to maturity. At the same time, 2,829, or an average of 6.6 pigs a litter, were raised out of all the pigs farrowed in the small field houses.

"Of course the small field houses cost much less on the average than the space for each sow costs in the central house. Many of the small field houses cost only $5 to $15 for each sow and litter. This encouraging experience with cheap equipment is leading many farmers to adopt the swine sanitation system."

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X May 4, 1927 Number 18




## Early Planted Corn Superior In Both Quality And Yield

The sooner farmers can get their corn planted now the better will be their chances for getting good yields and high quality in the crop, says George H. Dungan, assistant chief of crop production at the University of Illinois, College of Agriculture. All things considered, early planting of corn is to be encouraged, he said.

Corn planted the first of May or even as early as the last few days of April almost always yields more than that planted the last of May and the first part of June, according to results of tests made here. During most seasons, however, with average seed corn that may be infected with corn root rot organisms or susceptible to scutellum rot, the highest yields often will be obtained from plantings made from the 10th to the 15th of May.

The average yield of four varieties grown two years at Urbana was 63.3 bushels an acre when planted the first week in May as compared to 62.3 bushels an acre when planted the middle of May. The planting made the last of May averaged only 58.1 bushels an acre for the four varieties. In 1926 the same four varieties averaged 57.5 bushels an acre when planted May 1, 57.6 bushels an acre when planted May 15 and 46.3 bushels an acre when planted May 29.

"There is a tendency for the full season varieties to yield the most when planted early and for the earlier varieties to produce best when planted at an intermediate date.

"Quality of the crop is almost always in favor of the earlier planting, the lower yields not being the only danger in late plantings. Corn from a late planting often is so immature at the time of the first killing frost as to be cut short in its development and thus have its feeding value lowered. Also the moisture content of the grain at the time of harvest may be so high as to make the cribbing of the corn extremely hazardous."

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## French Publication Translates Experiment Station Results

Findings made by investigators in the experiment station of the College of Agriculture, University of Illinois on the relation of milk's energy value to its composition have been translated into French and published in "Milk", a general review of dairy subjects, of which Prof. Ch. Porcher, of the Veterinary School of Lyons, France, is the editor, according to word received here. The French material is a translation of parts of U. of I. Bulletin No. 282 in which O.R. Overman and F.P. Sanmann, of the dairy department, report the results of their investigations on the energy value of milk and give formulas for computing the energy.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8 1914. H. W. MUMFORD, *Director.*

## Time To Make Cheapest Pork Is While Pigs Are Still Young

Pigs grow faster in proportion to their size just after birth than at any later time, but the impulse to grow gradually dies out until it no longer exists when the hog is mature, Dr. W. E. Carroll, chief in swine husbandry at the College of Agriculture, University of Illinois, says. In general, fast gains take less feed than slow ones. Swine growers who wish to make cheap pork therefore can do so by giving the pig every chance to grow when the urge is strongest upon him.

"This requires first that the sow be fed liberally, for her milk is the first and most effective ration the pig gets. The sow can not make milk on corn alone any more than the Israelites of old could make brick without straw. Some protein supplement is necessary along with the corn. If enough skim milk or buttermilk is available no better supplement can be found. Tankage is a very good substitute for these dairy by-products. Soybeans or soybean oil meal serve the purpose well if a mineral supplement is kept before the sows. A supplement which meets all the known mineral deficiencies of a corn and soybean ration can be mixed on the farm at a cost of less than two cents a pound. This mineral mixture is composed of two parts ground limestone, two parts steamed bone meal and 1 part salt.

"At three weeks the pigs will begin to eat food other than their mother's milk if they are given the chance. A pig creep should be built into which they can go and eat without being disturbed by the sows. Almost any of the common feeds can be fed in the creep. A very effective ration for making cheap pork quickly is composed of shelled corn and a mixture of 2 parts tankage, 1 part linseed oil meal and 1 part alfalfa meal or chopped alfalfa hay.

"The corn and supplemental mixture are self-fed free choice. In case the feeding is being done on pasture the alfalfa hay is omitted from the mixture and the tankage and linseed meal may be mixed in equal proportions. Fine results have been obtained on the college farm by keeping a supply of shelled corn and the supplemental mixture in self-feeders in the pig creep.

"This system has the advantage that the ration does not have to be changed at weaning time. In fact, pigs handled in this way are so well started that they hardly miss their mothers when they are taken away. The pigs can be continued to market weight on the same ration."

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## Illinois Fifth Among All States In Number Of Radio Sets

Illinois is fifth among all states in the number of farms equipped with radio receiving sets, there being 65,832 such sets on farms of the state, according to a report to the College of Agriculture, University of Illinois from the federal department of agriculture. Iowa leads all states with 99,990 farm radio sets, while Indiana, Missouri and Nebraska, in the order named, are the states that precede Illinois.

The federal estimate, based on returns made by county agricultural agents throughout the country, places the number of farms that are equipped with radio receiving sets at 1,252,126, which is a 126 per cent increase over the 553,008 sets estimated on farms in July, 1925.

## Farm Bookkeeping Bids For Place With Three R's In Schools

Farm bookkeeping is competing with the three R's for a place in the public schools of Illinois. After numerous requests from teachers and school officials, the farm management department of the College of Agriculture, University of Illinois, has prepared materials for the teaching of farm accounting in the public schools of the state. These materials consist of two mimeographed circulars and the simple farm account book of the college which already is in use on hundreds of Illinois farms.

A list of all transactions taken from an account book kept by an actual Illinois farmer makes up one of the mimeographed circulars. The transactions are arranged in chronological order just as they occurred. With them is included a set of exercises designed to bring out principles underlying the accounts and simple fundamentals of farm management. This circular is for the use of the student. The second circular, which is for the teacher, is a reproduction of the completed farm account book with all entries made and answers given for the exercises in the student's circular. These materials are supplied at cost of printing by the farm management department of the college.

Illinois is one of the pioneer states in the introduction and use of farm bookkeeping, the present year being the twelfth one in the organized farm account project of the U. of I. College of Agriculture. Some of the small group who took up the project when it was started in 1916 are now keeping their twelfth year's records, thus indicating that the idea has met success, R. R. Hudelson, extension specialist in farm management, said.

Since November of last year farmers have bought at cost approximately 4,000 copies of the college's simple farm account book. This not only is another measure of the success of the farm accounting project but also shows that a sizable group of farmers in the state consider their farming as a business worthy of business methods, Hudelson said.

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## Running Drinking Water Is Found Best For Sanitation Pigs

Pigs raised under the swine sanitation system, the modern method in Illinois, thrive best on those farms where they are watered from a creek, a ditch or a tile out in the pasture, according to experiences reported by farmers who cooperated with their county farm advisers and the extension service of the College of Agriculture, University of Illinois in conducting swine sanitation demonstrations on their farms last year.

There was an average of only 1 runt in each 111 pigs where they had running water to drink. This was a much smaller proportion of runts than was found in any of the other lots, according to E. T. Robbins, livestock extension specialist of the college, who had charge of the demonstrations. On farms where the water was piped from the main farm well there was an average of 1 runt to each 71 pigs, while there was an average of 1 runt to each 61 pigs where the water was hauled to the pasture. Where the water was pumped from a well in the pasture there was 1 runt to 53 pigs.

"These figures offer encouragement to farmers who have pastures watered by running streams. Apparently, these streams do not ordinarily carry many of the eggs of the common round worm of hogs which seem to be the principal cause of runt pigs."

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X | May 11, 1927 | Number 19




## All Possible Barriers Being Thrown Across Borer's Path

Illinois and other corn belt states can be sure that the farmers of Michigan, Ohio, Indiana and other infested states to the east in which the enforced spring cleanup campaign is now in progress are doing all they can to kill the corn borers on their farms and retard its spread into the main corn belt, according to reports brought back by two Illinois authorities. One of these men, I. P. Blauser, of the farm mechanics department, College of Agriculture, University of Illinois, spent five weeks in the corn borer cleanup campaign in Ohio at the request of authorities in that state. His duties were to conduct demonstrations to show farmers how to use the tools and machines they had to best advantage in cleaning up. The other Illinois specialist, W. P. Flint, chief entomologist of the Illinois State Natural History Survey, visited in the infested region of Ohio to study cleanup methods and results.

"One cannot but be impressed with the fact that farmers in this section are, on the whole, doing their best to clean up the borer thoroughly and satisfactorily this spring," Flint said. "In many fields in the vicinity of Toledo one may see the farmer, his wife and several children picking up bits of corn stalk in the plowed land in order to remove as many borers as possible from the fields and kill them before they have produced moths this spring."

"Many of the fields which already had been plowed showed very little corn refuse on the surface of the ground. More attention than ever before has been given to getting rid of, either by burning or turning under, all crop residues and weed refuse which might have remained on the surface of the ground around the field. It is, of course, still possible to find the borers in even the most carefully cleaned up fields, but it is evident from all work being done that a very high percentage of the overwintering borers will be killed by the cleanup methods."

Blauser, who worked in five northern Ohio counties, devoted most of his time to demonstrations showing farmers how to adjust and equip their plows so that they would do a thorough job of turning under and covering the corn stalks and other refuse. Keen interest was taken by the farmers in these demonstrations, almost 2,000 of them having attended 33 meetings. Highly satisfactory results were obtained in getting ordinary farm plows to do a good job of turning under the corn stalks and other refuse, after the necessary adjustments and special contrivances in the way of jointers, coulters and wires had been arranged, Blauser reported.

Bad weather severely handicapped not only the cleanup but also the spring work of farmers in the infested region, according to Blauser. The cleanup itself did not delay spring work as much as some have been led to believe, he said. As evidence, he cites the fact that when he left Ohio, farmers in the infested counties of northern Ohio where the cleanup regulations were being enforced were farther along with oats seeding than farmers around Columbus where no regulations prevailed.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Home-Mixed Minerals Are Equal To Fancy-Priced Products

Farmers have been stirred up considerably on the question of mineral supplements for swine, but "the two things that are most needed in the way of mineral supplements are a little more straight thinking on the part of men who feed them and a little less 'hocus pocus' on the part of mineral salesmen," says Dr. W. E. Carroll, chief of swine husbandry at the College of Agriculture, University of Illinois. In case the ration being fed needs a mineral supplement it is not necessary to pay exorbitant prices for it, he said.

"In general, rations containing liberal amounts of skimmilk, tankage, fish meal or other protein supplements of animal origin will have enough of the necessary mineral elements, except common salt, to meet the needs of any class of swine. On the other hand, swine rations made up entirely of materials from the plant kingdom are likely to lack lime and may also lack phosphorous. Examples of such rations are corn and soybeans or corn and soybean oil meal. Even with such rations nothing apparently is to be gained, except in special cases, by adding other elements than calcium, phosphorous, sodium and chlorine. That being the case, the source of these elements, their cost and the proportion in which to feed them are the questions needing attention.

"A cheap, yet satisfactory, source of calcium is the ordinary agricultural limestone of high calcium grade. One of the best sources of phosphorous is steamed bone meal, while sodium and chlorine are added as common salt. The proportion of these materials generally recommended at the present time is: 2 parts ground limestone, 2 parts steamed bone meal and 1 part common salt. In case the feeding is being done in a goitrous area, the feeds and water will lack iodine. In these areas one ounce of potassium or sodium iodide should be added to each 100 pounds of the mineral supplement.

"This simple mineral mixture can be mixed on almost any farm at a cost not to exceed $1.25 to $1.75 a hundred pounds. If spent bone black can be bought for less than steamed bone meal it may be substituted for the bone meal in the formula. The Indiana station reports good results from a mixture of 10 parts wood ashes, 10 parts of 16 per cent acid phosphate and 1 part salt."

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## Farm Pork Production Costs Vary More Than Market Prices

Fluctuations in the market prices which Illinois farmers get for their hogs are not as wide as the variations from one farm to another in the cost of producing pork, it is shown in figures collected during the past three years by the farm management department of the College of Agriculture, University of Illinois. For instance, on some 40 farms in the same general community the 1925 costs of producing pork varied from $6.62 to $16.97 a hundred pounds. Such a difference in costs between farmsaccounts for most of the difference in profits and losses in the hog enterprise, R. H. Wilcox of the department, points out. Of the 40 farms, those producing one litter a year showed an average cost of $8.64 a hundred pounds of pork, while those producing two litters a year had a cost of $8.77 for each hundred pounds of pork.

"The number of pigs weaned by each sow was found to be one of the important reasons for differences in costs of producing pork. Low cost farms weaned 7.4 pigs to the litter, while the farms having high costs weaned only 5.2 pigs a litter, on the average. Thus the farms having high costs carried along and fed for several months some sows that did not produce any pigs and other sows that weaned but very few. It cost $26.11 to carry a sow in order to get one litter a year and if her pigs dwindled to two or three at weaning time it put very heavy initial costs on them."

## Skimmilk More Valuable As Cottage Cheese Than As Hog Feed

Some of the surplus skimmilk that is now being fed to hogs on Illinois farms easily could be made into cottage cheese and sold for 12½ to 20 cents a pound, according to P. H. Tracy, of the dairy manufactures division, College of Agriculture, University of Illinois. From 1¼ to 1½ pounds of cottage cheese can be made from a gallon of skimmilk and only a limited amount of equipment is needed for the process.

"In one method, junket, a tablet containing rennet, is used whereas in the other method the curd is set through the natural process of souring. The rennet cheese is a little more desirable. The milk must be of high quality produced under modern sanitary methods. As soon as the milk has been separated it should be cooled to 75 degrees and the part that is to be made into cheese placed in a vessel such as a large double boiler. If junket is to be used, a tablet should be dissolved in a pint of cold water and then added to the milk, stirring well. One tablet contains enough rennet to set about 50 gallons of milk and the solution should be used accordingly. The rest of the solution should be kept cold until used, as it deteriorates rapidly at room temperature.

"The milk should be held at a temperature as near 75 degrees as possible for about 18 to 20 hours. When it is ready to cut there will be a slight amount of whey on top, the curd will be firm and will cut clean when a spoon is passed through it. The curd should be broken up gently into small cubes and heated slowly with very gentle agitation. If no junket has been added, the curd should be heated to about 92 degrees in about 30 minutes and held at that temperature until the curd is firm enough to split open when squeezed. It should not be heated so long that it is tough or rubbery. Usually from 5 to 15 minutes will be necessary to firm the curd. If junket has been used, heat the curd slower but to a higher temperature, going to about 110 to 112 degrees in about 60 to 75 minutes. The cheese should be held at this temperature for 5 to 15 minutes until the curd is firmed.

"The whey should then be drained through a cheese cloth or strainer and the curd washed twice in cold water in order to chill it and remove the excess acid. The wash water is removed each time the same as the whey. As soon as the curd seems to have drained dry, salt should be added at the rate of 2 ounces to each 10 pounds of curd. The addition of a small amount of cream will greatly increase the palatability of the cheese. Glass jars or parafined paper containers may be used to advantage for marketing the product."

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## Mice Charged With Cutting Red Clover Seed Yields In Half

Mice have been charged with everything from "haunting" houses to starting fires, but authorities at the College of Agriculture, University of Illinois, say they have just discovered the best case against mice they have ever seen. On the college's south farm at the edge of the university campus are two plots of red clover being used in studying clovers for hay and seed production under different cultural practices. One of these plots is clipped or mowed in the fall and the other is not mowed. Five years' work has been done on the two plots and during that time the plot that has been clipped in the fall has yielded about twice as much clover seed the following season as the plot not clipped in the fall.

Recently while inspecting the two plots, John Pieper, assistant chief of crop production, discovered for the first time that the unclipped plot was riddled with mouse holes and burrows. The explanation is that as winter sets in the field mice in all the surrounding territory seek protection in the matted clover on the unclipped plot. During the winter the mice feed on the succulent crowns of the clover plants, thus retarding the growth of them when spring opens and cutting the yield of seed during the season that follows.

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

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Volume X May 18, 1927 Number 20



## Even Most Business-Like Farmers Hard Hit By Conditions

Not even Illinois' most business-like farmers escaped the stress of price conditions last year, for 210 such farmers lacked an average of $616 each of having anything to show for their labor after they had met all expenses and been allowed 5 per cent interest on an investment of $255 an acre in land, buildings, livestock equipment and feed.

The 210 farmers are among those cooperating with the county farm bureaus of Livingston, McLean, Tazewell and Woodford counties and the College of Agriculture, University of Illinois in a farm bureau-farm management service, a service devised for keeping careful farm records and analyzing the farm business. The plan is unique not only in Illinois but also in the entire country. The 1926 earnings of farmers getting the service are given in the second annual report just made for the project by M. L. Mosher and H. C. M. Case, of the college.

Expressed in another way, the earnings of the 210 farmers amounted to an average of 2.8 per cent on the entire farm investment after all expenses were taken care of and an allowance of $720 made for the operator's labor, the report shows. In addition, each family secured produce from the farm valued at $466.70 at farm prices. Also the house they lived in was worth $470.35 a farm a year, based on depreciation, upkeep and interest charges, the report points out. The total value of these two items was $837.05 at farm prices.

The income figures given in the report should not be considered as representative of all farms in the four counties, since surveys and studies show that farms on which records were kept in this project earned about a 2 per cent higher rate on the investment than the average of all farms in the same part of the state, the report says.

Even within the group of 210 farms there were wide variations in the earnings of the most successful and least successful farms, it is shown in the report. The 42 most profitable of the 210 farms made 5 per cent interest on the investment and had $1,410 to pay the operator for his own labor and management, while the 42 least profitable farms lacked $2,311 of making 5 per cent on the investment with nothing left to pay the operator for his own labor and management. This made a total difference between the high and low groups of farms of $3,170 in the return for the labor and management of the operators.

Crop yields, kinds of crops grown, the amount and efficiency of livestock kept, the use of man labor, power and machinery costs and the relation of expense to income were the chief factors which determined the difference between the most and least successful farms, the report explains.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Self-Feeding Boosts Cost But Not Amount Of Milk

Self-feeding, which has proved superior to hand feeding in fattening cattle and swine, fails when tried on dairy cattle, for they only run up the amount and cost of feed eaten without giving any more milk, it has been established in experiments by Dr. W. B. Nevens, assistant chief in dairy cattle feeding at the College of Agriculture, University of Illinois. Results of the investigation are given in a new bulletin, "Experiments in Self-Feeding of Dairy Cows", now being prepared for distribution to farmers and dairymen and other interested persons.

The eight cows used in the experiment were only of moderate dairy ability and it is possible that self-feeding might pay out with high producing cows, Dr. Nevens reports. This point, however, remains to be proved. Limiting cows to high protein feeds seemed to depress milk production.

The cows were kept in individual box stalls containing a feeder having several different hopper compartments. Supplies of grains and mill by-products were kept in the compartments constantly and hay and silage in other large feed boxes so that a cow might select as much of one or several feeds at any time she chose. The cows were gradually accustomed to the method during a two- to three-week period at the beginning of the feeding trials.

"Surprising as it may seem to those who have found that cows get sick through overeating, no harmful effects showed up in these cows, even though they were self-fed the year round. More feed than necessary was eaten, however, making the cost of feed greater than when the cows were hand-fed. The cows laid on additional weight, thus increasing the amount of feed necessary to maintain them.

"The method did prove useful in studying the relative palatability of different feeds. Much more of some feeds was eaten than of others, and in some cases the ration consisted of only one or two feeds, even though four or more other feeds were at hand. More was eaten when the feeds were offered separately than when they were mixed. Cows showed a very decided preference for certain feeds, and these preferences often extended over long periods. More feed was eaten by the cows when careful attention was given to their likes and dislikes. No two cows, however, had the same preferences for all feeds."

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## Series Of Spring Meetings On Soil Fields Opens May 23

That southern Illinois farm land could be made more efficient to the extent of as much as 40 bushels more corn an acre, 20 bushels more wheat and a ton more of hay, through the use of simple soil building practices advocated by the College of Agriculture, University of Illinois, will be demonstrated to farmers who attend the series of half-day field meetings to be held May 23 to 27 on five of the college's southern Illinois soil experiment fields. Dates for the meetings are: Toledo, May 23; Elizabethtown, May 24; Raleigh, May 25; Ewing, May 26 and Lebanon, May 27. Each of the meetings will start at 1:30 o'clock in the afternoon.

Farmers in the vicinity of Oblong, Newton, Odin and Carlinville will be next on the list to get the latest information on approved soil improvement methods as tried out and demonstrated on the southern Illinois soil experiment fields. The series of spring and summer field meetings being held on these fields will be continued with a meeting on the Oblong field May 31, the Newton field June 1, the Odin field June 2 and the Carlinville field June 3. The Odin meeting will be held at 10 o'clock in the morning so that the afternoon may be spent on Poorland farm, where the late Dr. Cyril G. Hopkins, a former member of the college agronomy department, carried out the experiment field idea in a practical way on his own farm.

## Fifth Annual Junior Club University Tour To Set Mark

Approximately 1,500 boys' and girls' junior club members, the largest delegation of Illinois farm youngsters ever brought together in the state, will gather from 50 counties for the fifth annual junior club university tour, June 8 to 10, it is announced by Miss Mary McKee, club work specialist of the College of Agriculture, University of Illinois and chairman of the committee in charge of the tour.

If registration for the event hits the mark which now seems probable it will be a decided increase over the record enrollment of last year when 1,102 four-H club members and their leaders from 42 counties of the state took part in the tour, Miss McKee said. It is estimated that there are now 15,000 Illinois farm boys and girls carrying on definite four-H club projects under direction of the college and their county farm advisers.

Most of the tour will be arranged to give the boys and girls a chance to see and learn more about their state university, since this is the chief purpose of the event. For the most part separate sessions will be held for the boys and girls, but rounding out the program will be joint sessions in which they will meet together for their welcome, games and recreation, a banquet, a special concert by the University of Illinois band of 100 pieces, and other attractions of general interest.

Approximately 800 of the tour visitors are expected to attend the annual four-H supper, which will again be made one of the features of the three days. H. W. Mumford, dean of the agricultural college, will preside as toastmaster.

The entire morning of the first day, June 8, will be given over to registration of the visitors, but at 1 o'clock that afternoon Dean Mumford will formally open the program with the address of welcome. Practically all of the separate sessions for the boys will be taken up with trips to 10 or more places of interest on the 1,000 acre farm of the agricultural college where the work with horses, sheep, cattle, orcharding and fruit growing, soils and crops and other branches of farming will be explained by various staff members. Girls in their separate sessions will devote most of their time to discussions of different lines of girls' club work.

During the tour the girls will be housed in the university women's gymnasium while the boys will be quartered in private homes in Champaign-Urbana.

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## Herd Improvement Plan Pays Quick Dividends To Herd Owners

Quick dividends in the form of more efficient production and accurate information about what a given cow can do at the pail are paid by dairy herd improvement associations, it is shown in the case of the Henry county association which has just sent the records of its first year of operation to the College of Agriculture, University of Illinois, where the work of these associations is supervised. Despite the fact that the association was operating for the first year, the 370 cows owned by the 27 members each averaged about 70 per cent more milk and butterfat for the year than the state average, according to J.H. Brock, assistant in dairy extension. Owners of both the high herds and the high cows utilized the tester's figures as a basis for culling boarder cows, balancing rations and feeding according to production, Brock pointed out. A definite record of these figures was kept by the tester, Dean Ole. Two of the five high cows in the association gave more than 500 pounds of butterfat under good farm conditions. It so happened that the second highest producing herd of C. A. Dunbar & Sons had the highest return above feed cost, or $192.11 a cow. Six cows in the lowest producing herd did not return any more above feed cost than did one cow in the Dunbar herd.

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X | May 25, 1927 | Number 21


## Light Crop Of Apples Will Put Premium On Blotch Control

A light apple crop, caused by a poor set of fruit and extensive frost injury, this year will bring good prices for the apple grower who puts out fancy fruit, but production of this kind of fruit will hinge on the control of apple blotch, says Dr. H. W. Anderson, associate chief of pomological pathology at the College of Agriculture, University of Illinois. Blotch is fungous disease causing black, tar-like spots on the fruit and cankers on the twigs and it so mars the fruit that it cannot be graded as No. 1, he explained. It is certain to be prevalent this season because of the heavy spring rains.

"Blotch will be rather easy to control this year by proper spraying, because the disease has been very mild during the past two seasons as a result of unfavorable weather for its development. Two applications of lime sulphur spray, mixed at the rate of 1 gallon of commercial lime sulphur to 50 gallons of water, constitute the first step in controlling blotch. The first application should be put on two weeks after petal fall and the second, three to three and a half weeks after petal fall. Then at four or five weeks after petal fall, a spray of Bordeaux mixture, mixed at the rate of 3 pounds of copper sulphate and 5 pounds of hydrated lime in 50 gallons of water, should be applied. This should be repeated about two weeks later. Apple growers ordinarily make an application of lead arsenate spray about nine weeks after petal fall for control of the second brood codling moth. This nine-weeks' spray also should contain Bordeaux mixture, especially on those varieties known to be susceptible to blotch.

"Even where no crop is expected it would be good insurance to apply the recommended sprays for blotch control, since the disease lives over winter in small cankers formed on the new growth. If these cankers are allowed to develop this year, control of the disease will be much harder in subsequent seasons."

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## Records Of Tested Cows Prove Worth Of Approved Practices

Topping the state average for butter fat production by 117 pounds, the 300 cows in the Montgomery-Macoupin Dairy Herd Improvement Association last year averaged 281.4 pounds of butterfat and 7,918 pounds of milk each, according to the annual summary of the association's records just received at the College of Agriculture, University of Illinois, where the work of these associations is supervised. Feed costs for each cow in the association averaged $74.94, while the return above feed costs amounted to an average of $96.90 for each cow in the association. As has been demonstrated before, the leading herds in the association were fed balanced rations of home grown feeds supplemented with purchased protein in concentrates, legume hay and corn silage, it is pointed out by J. H. Brock, assistant in dairy extension.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Farmer Controls Many Causes Of Variations In Cream Tests

Creamery operators are not always at fault when a patron's cream tests vary, says F. P. Sanmann, of the dairy department, College of Agriculture, University of Illinois. Even though the patron did not change the setting of the cream screw on his separator, it would be only by chance that the cream would test the same each time.

"A cow's milk seldom is of the same fat test even from milking to milking. The richer the milk before separation, the richer the cream will be.

"If the valve on the supply tank is not opened wide, the machine will be underfed, and a small amount of high testing cream results.

"If the milk is cold before separation, the cream will be so viscous that it will not flow readily, and a smaller amount of richer cream is obtained. Also, the cold cream tends to clog the cream outlet and this has the same effect as turning the cream screw in. Skimming cold milk usually causes high fat losses because of incomplete separation and because so much cream sticks to the skimming devices.

"An unclean separator may have the cream outlet partially clogged, so that a smaller amount of richer cream results. An unclean separator also causes the cream to be of low quality.

"If the crank handle is turned slower than the rated number of times a minute, or if it is not turned constantly, a larger amount of thinner cream is obtained. This causes much loss of fat in the skimmilk because of imperfect separation.

"It is seldom that the same amount of skimmilk or water is used to flush the bowl every time. The more of the skimmilk or water that is allowed to run into the cream, the lower will be the test.

"If the separator is set for rich cream, the above conditions will cause a greater variation in the test than if it is set for thin cream.

"If the cream is to be sold to a creamery, it is best to set the separator to give cream containing between 30 and 40 per cent of fat."

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## Clinton County Farm Tractor Costs Summarized For 1926

It cost $224.22 each to operate two-plow tractors on 60 Clinton county farms last year, while three-plow tractors on nine farms in the same county ran up an average bill of $339.32 each for operating expenses, it is shown in figures collected by the farm organization and management department of the College of Agriculture, University of Illinois. These costs compare closely with the rated capacities of the two sizes of tractors. The hourly costs were 90 cents and $1.13, respectively, for the two types of tractors. Clinton county is in the winter wheat section of Illinois and also in the area that supplies fluid milk to St. Louis and neighboring cities. As shown by the ratio of 60 to 9, two-plow tractors predominated over three-plow ones in the area surveyed. Annual fixed charges for interest and depreciation, two of the items in tractor operation costs, are declining as a result of an increase in the number of years of usefulness of tractors. This increase in the life of tractors probably is the result of mechanical improvements and also increasing knowledge of the operators, resulting in better care and operation, according to J. B. Andrews, of the department, who summarized the costs.

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## Five Farm Business Reports Show Wide Range In Profits

Earnings of Woodford county's best business farmers last year dropped to the lowest level in five years, while similar groups of farmers in four other sections of Illinois met with varying success ranging all the way from sizable losses on their labor and management to fair returns on their work, it is shown in annual farm business reports just issued by the farm management department of the College of Agriculture, University of Illinois, for five different sections of the state. The reports are based on definite records which the farmers kept in connection with the farm account project of the department. The earnings of these farmers are about 2 per cent higher on the investment than the average for all farmers in the different localities, it is pointed out. The five sectional reports just issued, together with similar ones for other sections, will be used as a basis for a state report showing the earnings of all Illinois farmers.

The 55 account-keeping farmers in Woodford county lacked an average of $261 each of meeting their operating expenses and getting 5 per cent interest on their average investment of $250 an acre in land, buildings, livestock, equipment and feed, even when nothing was allowed for their labor, management and risk, it is shown in the report for that section. Expressed in another way, the earnings of these farmers amounted to 2.95 per cent on the investment after $720 had been set aside for the labor of each farmer. This is in contrast to an earning of 3.3 per cent made by account-keeping farmers in Woodford county in 1925, 7.2 per cent in 1924, 3.1 per cent in 1923 and 3.1 per cent in 1922.

Hancock and Adams county farmers also failed to meet operating expenses and get 5 per cent interest on their average investment of $190 an acre in land, buildings, livestock, equipment and feed, the average deficit for each of 32 account-keeping farmers in that section being $190. When allowed $720 each to pay for their own labor, these farmers averaged 3.41 per cent on the average investment.

In Randolph, Monroe, Washington and Marion counties, however, 33 account-keeping farmers not only met expenses and realized 5 per cent interest on their average capital investment of $83 an acre but also had an average of $742 left to pay for their labor, management and risk. Expressed in another way, the earnings of each of these 33 farmers amounted to 6 per cent on the investment after each had been allowed $600 to pay for his own labor.

Thirty-four account-keeping farmers in Kendall and Grundy counties also pocketed fairly good returns, according to the report for that section. These 34 farmers not only met their expenses and got 5 per cent interest on their average investment of $223 an acre in land, buildings, livestock, equipment and feed, but also had an average of $535 each left to pay for their labor, management and risk. When they were allowed $720 each for labor, their earnings amounted to 4.2 per cent on their average investment.

Fifty-nine account-keeping farmers in Henry county had an average of $378 each left to pay for their labor, management and risk after they had met expenses and been allowed 5 per cent interest on their average capital investment of $239 an acre in land, buildings, livestock, equipment and feed, according to the report for that section. When $720 was fixed as the value of the labor of each of these farmers, their earnings amounted to 4.29 per cent on the average investment.

In addition to these earnings, farmers in each of the five sections benefited to the extent of about $725 from the use of the farm home and produce such as milk, butter and eggs which are not listed in the accounts, the reports point out.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service




Volume X June 1, 1927 Number 22

## Use Of Bigger Teams Helps Farmers Beat Bad Weather

Many of the few Illinois farmers who beat the weather man in their spring work this year did so by the use of big teams, hitched in western tandem style, according to E. T. Robbins, livestock extension specialist of the College of Agriculture, University of Illinois. These hitches, which reduce wasty side draft and thereby enable horses and mules to do more work in a day, have been widely adopted throughout the state this spring and are likely to be more popular than ever, now that farmers must use every means to get caught up with their work, he said.

"John Hubly, of Mason county, who has been using two-bottom gang plows with four big mules hitched two and two in tandem to each plow, writes that he had his plowing practically all done by May 10. Because of the increased efficiency of the tandem hitches, he estimates that he was able to plow about an acre more a day with each plow than would have been possible with the old four-abreast hitch.

"W. S. Corsa, of Greene county, has been using two teams of eight horses each. These were hitched to tandem discs early in the spring and consequently he got his oats in during the one or two days of suitable weather. Then there was a delay of several weeks before any more oats could be sown.

"Amos Anderson, LaSalle county, began three years ago working an eight-mule team to a three-bottom tractor plow which was adapted to team use. He works the mules four and four. At a recent demonstration on his farm he got the mules out of the barn after dinner and watered them in 10 minutes. Fifteen minutes later, or 25 minutes after he had gotten up from the dinner table, he had the mules hitched up and was plowing in a field 120 rods from the farmstead. His outfit plows about an acre an hour.

"Col. George Seaman, Christian county, has rigged up a 10-horse team hitched two and four and four. He has two gang plows coupled together turning four furrows at a time.

"Chris Gerber, McLean county, has a 12-horse team handling a four-bottom tractor plow. He has rigged up a truck to which the team is hitched and the truck guides the plow.

"All of these outfits are driven with one pair of lines on the front team. The other horses and mules are all tied in and bucked back so as to keep them in their places. These outfits are plowing an acre or more a day for each horse or mule in the team."

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. Mumford, *Director*.

## 55-cent Corn Turned Into $1 Pork By Sanitation Pigs

Fall pigs raised under the swine sanitation system now common on Illinois farms have come through with such few losses and have done so well that the 55-cent corn fed these pigs has brought about $1 a bushel in the form of pork, according to reports received on recent sales of last year's fall pigs by E. T. Robbins, livestock extension specialist of the College of Agriculture, University of Illinois. Farmers who used the sanitation system report success even on farms where fall pigs had been a failure before.

Many of the fall sanitation pigs which went to market weighing 200 pounds or more reached these market weights at six months of age. They grew much faster than pigs exposed to worms and disease infection in old hog lots, Robbins pointed out.

"Farmers practicing the sanitation system found that there were almost no losses of pigs during the winter. In the spring they had an even, thrifty bunch of hogs with practically no runts. This is in contrast to the ragged, unthrifty and stunted bunches of pigs raised from fall litters that are kept in old hog lots.

"During the past winter, many of the sanitation users also improved their feeding methods. The standard protein supplement which they used to balance corn was composed of 2 parts by weight of tankage, 1 part linseed oil meal and 1 part ground alfalfa hay. Farmers using this plan of feeding report that fall pigs self-fed on this mixture with all the corn they would eat have grown as fast as spring pigs kept on pasture during the summer with a balanced ration."

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## Farmers Cash In On Sweet Clover By Raising Beef Cattle

Farmers who have taken up the widely advocated practice of growing sweet clover for soil improvement are going a step farther now and in many cases are beginning to use beef cattle as a means of cashing in on the sweet clover without taking the fertility off the land, livestock specialists of the College of Agriculture, University of Illinois, say. These farmers are finding that cows raising calves or stocker steers and even steers on a full feed of corn may be pastured to advantage on sweet clover.

The general plan being followed by these farmers is the same one developed within the past few years with a herd of 10 beef cows on the experiment station farm of the agricultural college, E. T. Robbins, livestock extension specialist, points out. Under this plan, a rotation of corn, corn, oats and sweet clover maintains one beef cow for each acre of sweet clover grown. Each of the 10 cows is maintained during the summer on an acre of sweet clover pasture. During the winter she is kept on by-product corn stalks and straw which otherwise would be of small value on a corn belt farm. The cows get no grain, the only concentrated feed being 1 pound of cottonseed meal daily a head during the latter part of the winter. The income from each cow is her calf which weighs about 400 pounds at weaning time in the fall.

There is another way in which the use of cattle fits into the system of handling sweet clover. Sweet clover is hard to plow in the spring when the roots are tough. However, after the crop has been pastured during the summer and has ripened and died, it plows very easily.

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## Limestone Does Not Disappoint If Given Time To Work

Limestone requires time to sweeten a sour soil, just as a lump of sugar in a cup of coffee must have time to dissolve before being effective. The farmer who waits several months for the limestone to work, therefore, will not feel the disappointment that has come to many farmers who expected results too soon, says L. B. Miller, of the agronomy department, College of Agriculture, University of Illinois.

"Clovers are the principal crops to be directly benefited by limestone and the application should be made so that these crops can best utilize it. On soils too sour to grow clover satisfactorily, the stone should be applied at least six months before the clover crop is to be seeded.

"In the corn belt it is a common practice to seed clover in a spring grain crop following corn in the rotation. This works very well, whether the clover be intended for a hay crop, a seed crop or a source of green manure. Under such a system, limestone may be spread on the corn ground after it is plowed in the spring or during the cultivation of the crop.

"If it is not possible to do this, the next best thing is to spread the stone in the fall after the corn crop has been harvested. The loss by leaching, which this early application causes, usually is slight compared with the advantages gained in the earlier application.

"Most of the older soils are more sour on the surface then in the lower strata. It is best, therefore, not to plow the liming material under until time and cultivation have mixed it with the upper layer of the soil. Corn cultivation and the discing of the seed bed for the spring grain crop do this very well."

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## Nest Material, Not Feed, Should Be Denied Broody Hen

Nesting material, and not feed, should be taken away from the broody hen that is being broken up, says H. H. Alp, poultry extension specialist of the College of Agriculture, University of Illinois. The proper way to get a broody hen back into laying again is to stimulate egg production and the way to do this is to put her in a slatted-bottom coop free from all nesting material and to feed her liberally on egg producing feeds, Alp explained. Plenty of egg mash with milk and water to drink should be given. The persistently broody hen is, of course, better sold.

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## Institute of Cooperation To Have Two U. of I. Speakers

Two speakers from the College of Agriculture, University of Illinois, will be speakers at the third summer session of the American Institute of Cooperation which will be held this year at Northwestern University from June 20 to July 16. Dean H. W. Mumford, who served on the National Farmers' Livestock Marketing Committee of Fifteen from which evolved the producers' livestock marketing agencies, said to be the most successful voluntary cooperative marketing enterprise in the country, will speak June 30 on the subject, "The Hopes of the Committee of Fifteen." R. C. Ashby, assistant chief in livestock marketing, will speak June 27 on, "Management Practices of Local Shipping Associations."

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[illegible] does not disappoint it gives its work.

Limestone requires time to sweeten a sour soil, just as a liner of [illegible] a cup of coffee must have time to dissolve before taking effective. The [illegible] months several months for the limestone to work, therefore, will not feel the [illegible] statement that has come to many farmers who expected results [illegible] [illegible] of the extension department, College of Agriculture, University of [illegible].

"Clovers are the principal crops to be directly benefited by limestone and [illegible] applications should be made on that time crops can most utilize it. On soils [illegible] to grow alfalfa satisfactorily, the stone should be applied at least six [illegible] before the alfalfa crop is to be seeded.

"In the corn belt it is a common practice to seed clover in a growing grain [illegible] fall-winter rye in the spring. This works very well, whether the clover is [illegible] from top dress, a seed drop or a nurse or grass mixture. Under such [illegible], limestone may be spread on the corn ground after it is plowed in the spring [illegible] the cultivation of the crop.

"If it is not possible to do this, the next best thing is to spread the [illegible] in the fall after the corn crop has been harvested. The lime by [illegible] [illegible] this early application causes, usually is slight compared with the advantage [illegible] the better conditions.

"Most of the older soils are more sour on the surface than in the lower [illegible]. It is best, therefore, not to plow the liming material under until time [illegible] cultivation have mixed it with the upper layer of the soil. Corn cultivation [illegible] the chemical of the seed bed for the growing grain crop do this very well."

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Lime Material, Not Seed, Should Be Buried Broadly Now

The lime material, and not feed, should be taken away from the brooding [illegible] [illegible] Dr. Eugene H. Alp, poultry extension specialist of the College [illegible] University of Illinois. The proper way to get a scoop box from the [illegible] is to attach the egg production and the way to do this is to put [illegible] a little bottom scoop free from all scratch material and to feed [illegible] [illegible] provide for feeds, Alp explained. Plenty of URBANA WITH ILL [illegible] [illegible] should be given. The periodically brooding [illegible] ILLINOIS [illegible] [illegible].



Institute of Cooperation I Have Two U. of I. Speakers

The speakers from the College of Agriculture, University of Illinois, will [illegible] at the third annual session of the American Institute of Cooperation [illegible] will be held this year at Northwestern University from [illegible] to July 12. [illegible] H. Wright, who served on the National Farmers' Livestock Marketing Committee [illegible] from which [illegible] the producers' livestock marketing practice, will be [illegible] the most successful voluntary cooperative marketing enterprise in the country. [illegible] speak June 10 on the subject, "The Dropping of the Commission of Livestock." [illegible] [illegible], assistant chief in livestock marketing, will speak June 27 on "Governmental [illegible] of Local Shipping Associations."

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X June 8, 1927 Number 23


## Mumford Brothers Made Doctors of Agriculture by M.S.C.

A decision made almost 40 years ago by two Michigan farm boys, and brothers, in favor of an agricultural college over a denominational school brought its reward on June 10 when the two brothers, now the deans of two of the leading agricultural colleges in the middle west, returned to their alma mater, Michigan State College, Lansing, to be honored with their chosen profession's highest degree, doctor of agriculture.

Herbert W. and Frederick B. Mumford are the men honored. The former is dean of the College of Agriculture, University of Illinois and director of the Illinois Agricultural Experiment Station and agricultural extension service, while the latter is dean of the College of Agriculture, University of Missouri and director of the Missouri Agricultural Experiment Station. The degrees were conferred upon them in special ceremonies staged in connection with the annual commencement exercises at East Lansing. It was the 70th anniversary of the founding of Michigan State College, the world's oldest agricultural college.

Because their father was a bit skeptical of the influence under which they might be thrown at a larger institution, the two boys started their educational careers at Albion College, a denominational school. Both were naturally inclined toward agriculture, however, and consequently left Albion to take the last years of their four-year college course at Michigan Agricultural College from which they were graduated in 1891.

Both returned to the farm for a time after graduation and both have held positions at Michigan Agricultural College, now Michigan State College. Frederick B. has been at the Missouri agricultural college since 1895 and Herbert W. at the Illinois institution since 1901. The former was made dean and director in 1909 and the latter in 1922.

Recognized as one of the leading livestock authorities of the country, Herbert W., the Illinois dean, claims only the distinction that he never applied but for one position in his life and failed to get that.

He was one of the first, if not the first, in the country to recognize the importance of marketing studies in experiment station work. The first bulletin ever published on the marketing of a livestock product is his, "Production and Marketing of Wool", issued in 1900 by the Michigan Experiment Station.

Credit for doing the pioneering work in standardizing market classes and grades of livestock also is given to the Illinois dean, his own experience as a young man in selling livestock from the Michigan farm having inspired him to undertake the task.

It was he who inaugurated the practice now common with all experiment stations of using carload lots instead of just a few cattle in livestock feeding experiments. He introduced this change because he early recognized the inadequacy of the results from the usual livestock feeding trials in animal nutrition work.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

His activities have not been confined within educational institutions, for he served on the National Farmers' Livestock Marketing Committee of Fifteen from which evolved the producers' livestock marketing agencies, now acclaimed as the most successful voluntary cooperative marketing enterprise in the country.

The Illinois college and experiment station of which he is now dean and director early recognized that livestock problems are not confined in their scope to one state or even one country. Accordingly, when Argentine threatened to destroy the export beef and cattle trade of the United States, Dean Mumford, then head of the animal husbandry department, was sent to South America to investigate cattle raising conditions. He also has investigated livestock conditions in France, Great Britain, Belgium and Holland.

The first real comprehensive animal husbandry department that the country had also was developed at the Illinois institution by Dean Mumford. He recognized the impossibility of one man being a specialist in all fields of livestock production and accordingly sought specialists in animal nutrition, beef cattle, sheep, horses, and the various other lines and gave them time and the opportunity to become experts in their line.

In addition to being the author of one book and joint author of another the Illinois dean has written many bulletins and circulars on various agricultural topics. He is a member of numerous scientific and honorary societies.

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## Agronomy Head Made Doctor of Agriculture by Oklahoma A. and M.

One other staff member of the College of Agriculture, University of Illinois also has been honored with the degree of doctor of agriculture from his alma mater during the current commencement season. He is Dr. W. L. Burlison, head of the agronomy department. Oklahoma Agricultural and Mechanical College, from which he was graduated in 1905, conferred the honor upon him in special exercises held May 31 at Stillwater. The conferring of honorary degrees is a new departure for the Oklahoma institution and Dr. Burlison and one other graduate of the institution were the only two to be singled out for the honor this year.

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## Grain Elevator Short Course Cancelled For This Year

One of the newer and more popular of the short courses held annually at the College of Agriculture, University of Illinois will not be given this year, it is announced by officials of the college. This course, the one in grain elevator management, is being withheld from the schedule out of consideration of the fact that the American Institute of Cooperation is holding its annual summer session at Northwestern university in Chicago this year and devoting the first week, June 20 to 25, to a consideration of the problems connected with the cooperative handling of grain. The short course at the college has been held during the third week in June during the past two years.

While representatives of private, as well as cooperative, elevators have attended the short course, it was thought advisable to leave the field clear for the Institute of Cooperation, especially during the first week, when the short course ordinarily would have been held.

## Wet Weather Downs Chinch Bugs But Favors Cutworms

Nearly all damage to farm crops from chinch bugs to our farm crops occurs during dry seasons. For this reason, farmers can feel quite sure that no damage from these little bugs will occur in any part of Illinois this year.

While the late summer of 1926 was certainly wet enough, the early summer was dry, and consequently chinch bugs bred up in considerable numbers in many central and south central Illinois counties. Many of these bugs survived the wet period of the late summer, and had this spring been favorable to them, they undoubtedly would have done considerable damage in many Illinois counties including Christian, Shelby, Macoupin, Madison, Montgomery, Clinton, Washington, Bond and some other nearby counties. As it is, there have been no periods of more than one or two days during the entire spring which have been favorable to the development of chinch bugs, and consequently, farmers do not need to fear damage by these insects in any part of Illinois during the present year.

On the other hand, the continued wet weather which has resulted in many flooded areas along the rivers and the accumulation of small ponds of water in many fields has made a condition highly favorable to the breeding of certain species of cutworms. One of the most common cutworms in this state is the large greenish-gray species, known as the greasy cutworm. The moths of this cutworm are flying during May and June, and seem to prefer to deposit their eggs on the slimy muddy areas exposed after land has been flooded, or overflowed. The moths of this insect have been about normally abundant this spring. It would be well, however, to watch overflow areas rather closely where they are planted to corn.

Some of these cutworms may be killed by the use of the poison bran bait. This bait is made by stirring into 3 gallons of water, 2 quarts of black strap or other cheap molasses and 1 pint of sodium arsenite solution, or 1 pound of sodium arsenite crystals. After the molasses and poison have been thoroughly mixed together, stir this mixture thoroughly into 25 pounds of bran. Mix until all of the bran has been moistened, and if the mash is slippy, add more bran until it is just thick enough to hold together when tightly squeezed in the hand. Scatter this mixture over the infested fields just at dusk of an evening, sowing the bran broadcast from a wagon, or from boxes tied on the sides of a saddle. It should be put out at the rate of about 8 to 10 pounds an acre. It should not be put out in lumps or wind rows, as it is much more effective if scattered thinly and evenly over the surface of the ground.

If sodium arsenite, either in solution or crystals cannot be obtained, use paris green in the same way and at the same rate, but in making the bait, mix the paris green and bran together while dry, and then stir in the molasses and water.

The greasy cutworm is not as easily poisoned as are many of our cutworms, and one application of this bait will not clean them all out of infested fields. Where corn is planted late, it usually escapes with a somewhat less infestation than when planted earlier. Where the ground is known to be infested by these worms, the farmer may prefer to substitute some other crop for corn. He has five or six crops which may be seeded at this later date, and still have reasonably good chances of making a crop. These crops are cowpeas, millet, late potatoes, soybeans, sudan grass and sunflowers. The cowpeas and soybeans, in addition to their value as leguminous forage or hay plants, have an opportunity of maturing a seed crop. Unusual increases in the acreage of millet and sudan grass harvested for seed are likely to depress the prices for seed next fall. Potatoes planted as late as July, as will likely be necessary, are not a sure crop by any means, but if weather conditions are reasonably favorable, should produce a fair yield. --W. P. Flint, chief entomologist, State Natural History Survey.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X June 15, 1927 Number 24

## Season Is Here For "Bargain" Prices On Dairy Feeds

Savings of $5 to $15 a ton in the cost of feeds like linseed oil meal, wheat bran and cottonseed meal may be made by buying during the summer instead of waiting until the winter feeding season opens, says Dr. W. B. Nevens, assistant chief in dairy cattle feeding at the College of Agriculture, University of Illinois. "Besides the saving made in buying during the season of low prices, further price reductions can be secured by several farmers ordering a carload of feed together instead of each buying a small quantity as needed. Such an order is conveniently handled through the local dealer. Still other savings can be made by hauling the feed directly from the car upon arrival and paying cash instead of having the dealer carry the account.

"Figures covering feeds which the dairyman needs to supplement his farm grown corn and oats show that prices of such feeds usually decline as soon as the pasture season opens and reach their lowest levels during the spring or summer months. The highest prices, on the other hand, are generally reached during the winter feeding season when there is an active demand for these feeds. General farm work often prevents the herd owner from giving the matter his attention until the barn feeding season begins, when demand for feeds soon sends prices up. Most feeds like linseed oil meal, wheat bran, cottonseed meal and gluten feed, will keep well for a year or more if stored in a dry place, so that one need not hesitate from the standpoint of keeping qualities in buying now for next winter's use."

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## Many Farm Children Given First Taste Of College

The thrill of "that first week in college" struck many an Illinois farm boy and girl for the first time when 745 boys' and girls' club members and local club leaders from 43 counties gathered at the College of Agriculture, University of Illinois for the fifth annual junior club university tour, June 8, 9, and 10. From the time that Dean H. W. Mumford welcomed them to the college until the special concert by the university band of 100 picked musicians had been concluded, the youngsters made the most of the recreation and instruction that had been provided for them. The many things of interest in the way of blooded livestock and up-to-date practices on the 1,000 acre farm of the agricultural college held the center of the stage with the boys who took part in the tour, while the girls confined their attention to clothing, canning, flowers, cooking and similar topics. Group singing, a banquet and other attractions were of common interest to both the boys and girls. The 43 county delegations included Adams 25, Bond 9, Bureau 1, Carroll 5, Champaign 111, Christian 7, Coles 13, Cook 1, DeKalb 8, Douglas 6, Edwards 1, Franklin 4, Fulton 6, Greene 3, Grundy 2, Hancock 10, Henry 23, Iroquois 24, Jasper 43, Johnson 19, Kane 24, Knox 4, LaSalle 49, Livingston 9, Logan 47, McHenry 8, McLean 42, Macon 41, Macoupin 2, Marshall 47, Menard 25, Mercer 1, Monroe 1, Montgomery 3, Peoria 2, Piatt 48, Rock Island 7, Saline 1, Sangamon 5, Stephenson 4, Tazewell 4, Vermilion 28 and Williamson 22.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## 208 Pounds Of Limestone Used By Crops Of Four Years

Four years of average crop yields take the equivalent of 208 pounds of limestone from an acre of soil, which partly explains why 75 per cent of the land in Illinois is too acid to grow legumes successfully, according to C. M. Linsley, of the agronomy department, College of Agriculture, University of Illinois. A second reason for soils becoming acid is the fact that calcium, which is the valuable part of limestone, is dissolved and carried away in the drainage water, while acids, being less easily dissolved, are left in the soil.

"A 50 bushel crop of corn takes away the equivalent of 27½ pounds of limestone an acre, 50 bushels of oats 21 pounds, 25 bushels of wheat 14 pounds and 2 tons of clover hay 146 pounds. Removals such as these together with the drainage water losses account for the fact that land that would grow good crops of clover 15 to 20 years ago without any special treatment will not grow clovers now without an application of limestone.

"The effect of years of cropping on the calcium content of the soil is brought out in a striking way on the historic Morrow plots here at the agricultural college. One of these plots has been cropped in a rotation of corn, oats and clover for 50 years, all the crops being taken off and no limestone or fertilizers put on during that time. Red clover was seeded on this plot last year and although seasonal conditions have favored clover, there was only a very thin stand of unthrifty plants this spring.

"Over the past 38 years, the records on this plot show that the equivalent of 2,862 pounds an acre of calcium carbonate, or limestone, has been taken off in the crops of corn, oats and clover. There has been an added loss in the drainage water of at least 250 pounds of limestone an acre a year from this plot. Figuring on this basis, 9,500 pounds of limestone, or almost five tons, would be required to replace the calcium lost in the drainage from an acre of this land during the last 38 years.

"On the plot next to this one, limestone has been applied to replace that taken off with the crops and leached out by the drainage water. On this plot the stand of clover this year is excellent."

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## Dairymen Top Profit Column By Using Tester's Tips

Almost 100 per cent utilization of the practical and up-to-date pointers given them by their cow tester made it possible for nine members of the Knox-Warren Dairy Herd Improvement Association to get an average of better than 300 pounds of butterfat a cow out of their herds last year and thereby lead the association in profits, according to a summary of the association's records just compiled by J. H. Brock, assistant in dairy extension at the College of Agriculture, University of Illinois, the sponsor of these associations. Fred Shipley is tester for the association. A total of 498 cows owned by 20 different dairymen were tested during the year in the association. Herds averaging more than 300 pounds of butterfat a cow carried the equivalent of 153 cows for a full year at a total return over and above feed cost of $14,602. In contrast, herds that averaged less than 300 pounds of butterfat a cow carried the equivalent of 169 cows for a year at a total return over and above feed cost of $11,184. Two cows in a herd averaging more than 300 pounds of butterfat returned as much profit above feed cost as did three cows in a herd under that average.

## Twelve Horse Pulling Contests Scheduled For Fairs

Twelve horse pulling contests at county and district fairs in Illinois already have been scheduled for this year it is reported by E. T. Robbins, livestock extension specialist of the College of Agriculture, University of Illinois, who has charge of the contests. In the order of their occurrence, these contests will be held at Danville, Lewistown, Mason City, Decatur, Atlanta, Princeton, Belvidere, Lafayette, Mazon, Peoria, Tuscola and Aledo. Half of these fairs had contests last year. These were the fairs at Danville, Lewistown, Princeton, Lafayette, Mazon and Tuscola. Altogether last year nine horse pulling contests were held in which the competitors included 82 teams weighing under 3,000 pounds and 31 teams weighing 3,000 pounds or more. The estimated attendance at the nine contests was 35,200 people. The plan with prizes will be the same this year as last year. Each fair will give $200 in prizes. There will be one class for teams under 3,000 pounds and one class for teams 3,000 pounds or more. The prizes in each class will be $40, $30, $20 and $10.

The team which holds the Illinois record for the best pulling in the light class is a pair of grade Clydesdales entered and driven last year by C. F. Faber, Lamoille, Illinois. These horses weighed 2,930 pounds. They lifted a weight of 2,475 pounds and carried it a distance of 27½ feet. The team making the best record in the heavy class was a grade Percheron and a grade Shire entered by Allerton Farm, Atkinson, Illinois. These horses weighed 3,870 pounds. They lifted 2,700 pounds and carried it a distance of 27½ feet without a stop.

The only other team in the state to approach this record closely was a pair of registered Percheron mares entered in the little international pulling contest at the College of Agriculture, University of Illinois last winter. These mares, Louise and Carnona 3d, weighed 3,350 pounds. They picked up the weight of 2,700 pounds and carried it 7 feet. They had already taken 2,650 pounds the full distance of 27½ feet. Thus they carried in this weight 79 per cent of their weight. The pair of horses holding the state record in the light class carried 80 per cent of their weight. A still better record than either of these is a record made by a span of 2,825 pound gray mules from the U. of I. College of Agriculture. These mules carried 2,300 pounds or 81 per cent of their weight.

The state record of carrying a weight of 2,700 pounds 27½ feet, as made by the Allerton Farm horses, is equivalent to starting for 15 or 20 times in succession on a paved street a load of 17½ tons. These figures give an idea of the tremendous power which horses and mules can develop. The Percheron mares, Louise and Carnona 3d, developed 21 horse power in one of the trials on the dynamometer.

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## Early Lambs Escape Injury By Sheep Stomach Worms

Early lambs have been produced in constantly increasing numbers in Illinois during recent years. They are fattened while sucking the ewes and are sold in late spring or early summer. This year, Bert Webb of Hancock County, reported that he sold some of his lambs this past spring at $24 a hundred.

Besides putting the lambs on an early market and bringing a high price for them, this system has a distinct advantage of reducing injury from stomach worms. These parasites are the bane of the Illinois sheep raiser. During mid-summer, the lambs commonly suffer severely from these internal parasites. The early lambs which are fattened and sold before June 15 escape this injury entirely. Usually they bring more dollars a head than they would ever bring again in their lives. E. T. Robbins, livestock extension specialist, College of Agriculture, University of Illinois.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X June 22, 1927 Number 25

## Succeed In Making Superior Bread From Soft-Wheat Flours

Superior bread can be made from Illinois soft-wheat flours despite the fact that the bread-making qualities of these flours have not been as clearly recognized by home and commercial bakers as their value for pastries and quick breads, according to a preliminary report by the College of Agriculture, University of Illinois, on studies dealing with the use of soft-wheat flours in the home baking of bread. The report takes the form of a new circular entitled, "Good Bread From Illinois Soft-Wheat Flours". The tests were made by the home economics department of the college. Many loaves of bread showing excellent appearance, texture and flavor have been baked from soft-wheat flours, the report points out.

Fully half the wheat grown in Illinois is classed as soft, and therefore it would be an advantage to the state and to the country as a whole if more extended use could be made of soft-wheat flours in the making of bread, the circular points out. For some time the agricultural college has been investigating Illinois wheats and the flours manufactured from them. The study made by the home economics department of soft-wheat flours and their baking qualities are a part of the investigation.

In the study, some changes in the usual procedure with hard-wheat flours improved the quality of bread made with the soft-wheat flours, according to the report. Modifications were made in the proportion of ingredients, in the length of the fermentation period, and in the character and manipulation of the dough.

In the first place, the amount of yeast, sugar, fat and salt suggested for bread from soft-wheat flour is greater than that used in common practice, it is recommended in the report. Also, with bread baked from soft-wheat flours the experiments clearly indicated the desirability of finishing the process in as short a time as possible. This is accomplished by using more yeast than frequently is used and by providing conditions, such as pre-fermentation period, which increase the activity of the yeast. When soft-wheat flour is being used for making bread, the dough should be kept as soft as possible, the report continues. When the proportion of flour to liquid is right, there is a tendency for the dough to be soft and slightly sticky, so that careful and rapid handling is necessary to prevent it from sticking to the board and to the hands, it is pointed out.

In a foreword to the new circular, H. W. Mumford, dean and director, points out that it is hoped the information in the publication will be of interest not only to the homemaker and the teacher, but also to the miller and farmer. The possibility of a better utilization of the Illinois soft-wheat flours may involve more careful choice of varieties of wheat to be grown and modifications in milling practice, as well as changes in the bread-making process.

Authors of the new circular are Ruth A. Wardall and Natalie K. Fitch. It is No. 317 and may be obtained upon request from the College of Agriculture, Urbana.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director.*

## Field Meets To Show How Even Best Soils Can Be Improved

Evidence that even the more fertile soils of the Illinois corn belt can be made more efficient crop producers through treatment by tried methods will be presented to farmers who attend one or more of the series of field meetings to be held during the week of June 27 on five of the central and northern Illinois soil experiment fields operated by the College of Agriculture, University of Illinois. Fields on which meetings are to be held and the dates are: Hartsburg, June 27; McNabb, June 28; LaMoille, June 29; Mount Morris, June 30, and Joliet, July 1. The meetings are open to all interested farmers and will start at 1:30 o'clock on each field.

A good example of how approved methods of soil treatment boost crop yields and swell the efficiency of crop production on even the more fertile soils of the state is to be found on the Hartsburg field. Land on this field is so fertile that it grows sweet clover and alfalfa without the use of limestone, which is unusual for average farm land in Illinois. Despite this fact, the use of sweet clover green manure has added 16 bushels an acre to the average annual corn yields during the past four years.

Use of rock phosphate on the McNabb field has added 5½ bushels an acre to the average annual corn yield during the past 18 years.

One of the biggest crop increases shown by any of the five fields is to be found at LaMoille where the corn yield has averaged 67.3 bushels an acre for the past 14 years on the treated land as against 44 bushels an acre on the untreated land.

On the Mount Morris field, the use of limestone and sweet clover green manure has increased the wheat yield 13 bushels an acre and the corn yield 21 bushels an acre, while the use of limestone has added 1,640 pounds an acre to the yield of red clover.

Limestone, sweet clover and rock phosphate have boosted the wheat yield on the Joliet field more than 15 bushels an acre, while limestone and rock phosphate have added more than two tons an acre to the yield of alfalfa.

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## Brown Rot Epidemic Threatened In Illinois Peach Orchards

Ideal weather for the development of brown rot, one of the serious diseases of peaches, has prevailed since the trees started to bloom in March and April, and growers therefore should prepare for what may be an extremely heavy infection as the fruit approaches maturity, according to Dr. H. W. Anderson, associate chief of pomological pathology at the College of Agriculture, University of Illinois. Heavy rains since blooming time already has caused twig and blossom blight and the rotting of immature fruit, a condition which is very unusual in this state. The spores of the brown rot fungus are so abundant in the orchards on these rotted tissues that there is little doubt but that the infection will be heavy later in the season.

"The only thing that may tend to reduce the loss is the scarcity of curculio in the large commercial orchards of the state. If wet weather prevails even this factor will not save the crop unless the fruit is kept thoroughly sprayed. Growers should start in at once applying sulphur sprays or sulphur dust and should keep the fruit thoroughly covered until a week before harvest. These later sprays should not have lead arsenate added."

## Economical Gains Made By Beef Calves On Common Farm Feeds

Common farm feeds balanced up with a little high protein supplement are enough to carry beef calves along rapidly to a high market finish, as shown by the experience of farmers who have fed calves in the Illinois Half-Ton Calf Club, it is pointed out by E. T. Robbins, livestock extension specialist of the College of Agriculture, University of Illinois, who has charge of the club.

Thus far, five calves have met the requirements of the club by reaching the weight of 1,000 pounds or more by the time they were a year old. All of these have been fed principally on farm grown feeds, according to Robbins. The usual ration has been shelled corn and oats, with clover, alfalfa or soybean hay. Early in the feeding period, lots of oats have been fed. Gradually the oats have been reduced and more and more corn fed. During the last three to six months of the feeding period most of the calves had some linseed oil meal.

A good example of how this method of feeding works out is to be found in the case of the latest half-ton calf. He was a registered Shorthorn fed on the farm of R. W. Gates, Tuscola. His two sons, Gaylord and Wayne, who are school boys, fed the calf. They started feeding a little oats when the calf was a month old and gave it all the oats it would eat for a few months. At two months of age, the calf was given shelled corn, the amount being increased steadily according to the calf's appetite. During the last six months the oats were reduced and during the last three months, a little oil meal was fed.

At the end of the year the calf was getting a daily ration of 4 pounds of oats, 14 pounds of shelled corn and 1 pound of linseed oil meal daily. At that time it was getting clover hay. During the first half of the year it had alfalfa hay. This calf had what milk its dam gave throughout the year.

While milk is a great help in producing the weight of 1,000 pounds by the time the calf is one year old, it is possible to make highly satisfactory gains and get a high degree of finish even if a calf is weaned after it is a few months old, as is commonly done, Robbins pointed out. A calf not getting milk would be benefited by getting twice as much linseed oil meal as was fed to the Gates' calf.

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## Sweet Clover In Illinois Reported Damaged By A New Disease

A sweet clover disease not previously reported in Illinois has destroyed a number of sweet clover fields that looked well last fall, it is reported by Dr. Benjamin Koehler, crop pathologist at the College of Agriculture, University of Illinois. The disease has often been seen in irrigated regions, but has never been studied critically, nor has it yet been named. Its presence in Illinois can be accounted for by the fact that during the present wet season many places in Illinois resemble irrigated conditions. With the return of more normal seasons, it is hoped that the disease will not cause further trouble, Dr. Koehler said.

The upper part of the main root dies and rots. This may occur anywhere from the crown to eight inches below the ground. The plants then wilt and die. If one tries to pull up the plants after they show indications of wilting, they will break loose very easily, somewhere near the ground level.

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X | June 29, 1927 | Number 26

## Most Clover Seed Produced By First, Not Second, Crop

Contrary to the general belief, results of seven years' tests made by the College of Agriculture, University of Illinois in cooperation with the Illinois State Natural History Survey show that the production of red clover seed is highest when the first crop of clover is used for seed. It has long been the custom of farmers to use the first, or spring, crop of red clover for hay and the second, or summer, crop for seed.

Results of the tests are especially significant just now, in view of the fact that the shortage of red clover seed has turned the thoughts of many growers of red clover to the possibility of producing seed during the current year.

"Production of seed depends upon many factors which are being further extensively studied at the Illinois station," J. H. Bigger, assistant entomologist of the Illinois State Natural History Survey, said. "It appears that pollination is one of the most important factors, and this is the point where use of the first crop for seed production wins out over the other practices. This factor of pollination is being carefully watched and a statement will be issued shortly as to the advisability of taking seed from the first crop this year."

The practice of using the first crop of red clover for hay and the second for seed has been widely advocated by growers and agronomists. Until very recent years it also has been approved by entomologists working with a knowledge of insects, pests and their life histories but without the backing of experimental evidence. Four different methods of procedure were used by the agricultural college and the natural history survey in the tests to determine what cultural practice produces the most seed.

The practice of using the second crop for seed, as is commonly done, ranked second to the use of the first crop for seed in the tests made during the past seven years. Single- or double-clipping in the spring for production of seed reduced the yields in these experiments. The tests were all made on the Urbana fields of the agricultural college.

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## Cattle Feeders to be Given Results of Tests July 15

Plans for a cattle feeders' meeting to be held July 15 are being made by the animal husbandry department of the College of Agriculture, University of Illinois. By that time the cattle now on feed in the new beef cattle feeding plant will have been finished and the results of the season's experiments will be explained. The results will be of particular interest to men who may have soft corn to market this fall. The program for the event will be completed in the near future.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Dairy Herd Improvement Plan Pays Out in Short Time

Improved dairying practices which Martin Sy, Broadlands, Champaign county, adopted during the first three months after he joined his county dairy herd improvement association increased the returns from his herd enough to pay his membership dues in the association for three years, according to a report by Horace Erwin, tester for the association, to the College of Agriculture, University of Illinois, where the work of these organizations is supervised.

The first month that the 17 Holsteins in the Sy herd were entered in the association they were fed ground corn, corn stalks and a little soybean hay and returned only $30.82 over and above feed costs. As these cows were capable of producing more, Erwin suggested that they be fed heavier and also that some oats and linseed oil meal be added to balance up the ration.

Interesting improvements were brought to light when the herd was tested the following month. At that time the cows were averaging 641 pounds of milk each instead of 446 pounds as in the previous month. Also, because they had been fed according to the feeding suggestions, the cows paid a return of $111.62 above the cost of their feed, or a gain of more than $80 over the previous month. The third month, Erwin found that this same herd showed a return of $152.03 above feed costs, as a result of the owner utilizing additional feed suggestions. There were, however, two fresh cows in the herd, but this was partially offset by the fact that one cow had been sold for beef. Also, the price of milk had dropped 30 cents a hundred pounds.

"Improvement such as this in the efficiency of feeding dairy cows is but one of the many advantages to be derived from active membership in a dairy herd improvement association," J. H. Brock, assistant in dairy extension at the agricultural college, pointed out.

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## Vegetables Must Catch the Buyer's Eye to Sell Well

The old adage that half the value of a product is in the appearance holds true in the case of vegetable products, and unless they appear on the market in a fresh, crisp condition they are quite likely to be overlooked by the buyer, says L. H. Strubinger, of the horticulture department, College of Agriculture, University of Illinois.

"No matter how fine the quality of the vegetables, they probably will not be bought by the housewife unless they are attractive and so appeal to the eye. To meet these requirements the vegetables must be harvested at the proper stage of maturity. Vegetables that are either too immature or that are too far developed are not likely to meet a ready market.

"Many vegetable crops should be thoroly washed immediately after they are harvested so that they can be carefully graded and sorted. Vegetables that are expected to appear in the best of condition need not be the largest specimens, but must be uniform in size, in color and in shape. Some over-grown individuals are quite likely to so distract from the appearance of the entire lot as to make them sell very slowly.

"Root crops that are to be sold with the tops on should be neatly tied into bunches of uniform size. Leaf crops should be in some clean container that is not likely to be offensive to the eyes of the buyer."

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## Northern Illinois Corners Honors in Judging Contest

Northern Illinois corned the honors in the annual state judging contest for vocational agriculture students when the team from the Dixon, Lee county, high school turned in the highest score in the judging of fat cattle and the team from the Sandwich high school, in the adjoining county of DeKalb, outscored the others in the judging of dairy cattle. The contest was held at the College of Agriculture, University of Illinois, June 24 and 25. The Dixon team, winner in the fat stock division of the contest, is composed of George Brooks, John Spangler and Elmer Williams and was coached by J. H. Weiss, Agriculture teacher. The Sandwich team, winner in the dairy cattle division, is composed of LaVerne Johnson, Charles Lett and Browning Knight and coached by Ben C. Eade, agriculture teacher.

Individual honors in the judging of all fat stock went to Forrest Kermickle, of Olney, while top individual honors in the judging of dairy cattle were captured by Halsey Miles, Galesburg. Dale Mitchell, of Oakwood, distinguished himself as the best judge of poultry in the contest, and Charles DeHart, of Arthur, took the honors in grain judging.

Placings made by the high school judges on the various classes of livestock were graded by animal husbandry staff members of the agricultural college. The staff members also served as jurors to hear the reasons on the placings of the judges in the various classes.

The Dixon team will be the state's representative in the national non-collegiate fat stock judging contest to be held at the next Chicago International Livestock Exposition, while the Sandwich team will enter the national dairy cattle judging contest to be held at the next National Dairy Show.

Trailing the team from Dixon in the judging of fat stock were the teams from DeKalb, Milford, Antioch, Arthur, Chenoa, Waterman and Walnut, tied for seventh; Olney and Gurnee. The DeKalb dairy cattle judging team likewise took second in that contest. Other teams among the first ten in the dairy cattle division were, in order: Fairbury, Walnut, Rockford, Waterman, Galesburg and West Bureau, tied for seventh; Arthur and Nokomis.

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## Cheap Minerals Suit Pigs in Sanitation Demonstrations

Pigs seem to do as well so far as health is concerned on simple home-grown feeds without much else excepting protein supplements to balance the deficiencies of corn and other grain. Of course, all pigs need salt. Not much else in the way of minerals is required. These are facts suggested by the reports of swine sanitation demonstrators in Illinois. Last year, on the 160 sanitation farms from which reports were received, there were 2,791 pigs raised with no other mineral but salt. These averaged only one runt to 143 pigs. There were 6,365 pigs raised on farms where a home-mixed mineral was used, usually containing ground limestone or wood ashes with salt. These pigs had one runt to each 71 pigs. On other farms, commercial minerals were supplied to 3,493 pigs and these developed one runt among each 59 pigs. It is apparent that the use of minerals did not decrease the number of runts. The farms which used a cheap home-mixed mineral raised the largest litters of any, averaging 6.6 pigs per litter. The farmers using a commercial mineral averaged 6.3 pigs a litter. On the farms using salt alone, the litters averaged 6.1 pigs each. - E. T. Robbins, livestock extension specialist, College of Agriculture, University of Illinois.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X July 6, 1927 Number 27


## Plans Now Complete For Cattle Feeders' Meeting July 15

New results on the soft corn question and two other phases of the beef cattle feeding business will be given to farmers and feeders who attend the beef cattle feeders' day at the College of Agriculture, University of Illinois, July 15, it is announced by Professor H. P. Rusk, head of the animal husbandry department. Experiments which will be the feature of the day are the first to be made in the new beef cattle feeding plant and by the day of the meeting they will have been completed so that the results can be explained and the finished cattle exhibited.

Speakers for the meeting include John Hubly, Mason City, winner of the grand championship in the carload classes for fat cattle at the Chicago International Livestock Exposition six out of the eight years he entered the competition; James E. Poole, livestock market specialist of the Union Stock Yards, Chicago, and C. G. Randell, of the federal department of agriculture. Professor Rusk will conduct the inspection of the cattle and discuss the results of the experiments, and Sleeter Bull, of the college meats division, will stage a carcass demonstration showing the differences between the steer and heifer calves.

Due to the lateness of the season, the prospect of many Illinois farmers having soft corn this fall looms large. The soft corn experiment now being made by the college therefore has been attracting wide attention and is expected to be the center of interest on the program. Whether or not the ensiling of only the ears is a practical method of saving a soft corn crop will be determined pretty largely by the outcome of the experiment. The other two beef cattle feeding questions which are being attacked in the experiments are the relative merits of soybeans and soybean products in comparison with cottonseed meal as a protein supplement for fattening cattle and the relative worth of steer and heifer calves for baby beef production.

Results already are available on the comparison between the steer and heifer calves. After the calves had been on feed 140 days, the heifers were considered well enough finished to be marketed. Accordingly, both lots of cattle were weighed and market valuations placed on them by a committee of commission men and cattle buyers from the Union Stock Yards, Chicago. Because of their apparently superior finish, the heifers were valued at 10 cents a hundredweight more than the steers. The valuation placed upon the heifers was but 25 cents a hundredweight below the extreme top of the market for their age and weight, while that placed on the steers was approximately $1 below the top of the market for light yearling steers. This may be taken as evidence that when fed over periods of equal length heifers attain a higher degree of finish than steers but that steers must have considerably more finish than heifers if they are to sell at the top of the market, R. R. Snapp, of the animal husbandry department, pointed out. On the basis of the valuations placed on them, the steers returned a profit of $9.87 a head and the heifers $14.30 a head at the end of the 140 days feeding. All of the experimental cattle will again be valued by a committee of commission men and buyers the day of the cattle feeders' meeting, by which time they will have been on feed 200 days.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## New Bulletin List Best Varieties Of Corn For Illinois

Best varieties of corn for northern, central, southwestern and southern Illinois, as determined by comparative yield tests made during the past 11 years at four different points in the state by the College of Agriculture, University of Illinois, are reported in a new bulletin, "Productiveness of Certain Varieties of Corn in Illinois," which has just come off the press at the experiment station of the college and is ready for free distribution to interested farmers.

For the northern part of the state, Golden King, Western Plowman, Strout Red, Will County Favorite and Hecker Red appear to be the best on the basis of yield tests made at DeKalb, the bulletin reports. The highest yielding varieties at Urbana, in central Illinois, were Illinois Two-Ear, Illinois High Yield, Reid Yellow Dent, Golden King, Will County Favorite, Western Plowman and Boone County White. Under conditions prevailing on the Alhambra field, in southwestern Illinois, Mohawk, Black Hawk, Champion White Pearl and Democrat have given the best yields. Chinch bug injury to corn on the Alhambra field was serious, especially during the years 1919 to 1922, the bulletin explains. At Fairfield, in southeastern Illinois, where chinch bug infestation was not a serious handicap during the test period, the highest yielding varieties were Perrine White Pearl, Funk 90 Day, Sutton Favorite, Reid Yellow Dent, Democrat, and Champion White Pearl.

Possibilities for swelling the acre returns from Illinois corn fields by the growing of adapted high yielding varieties are pointed out in the bulletin. At the Urbana field, for instance, the difference in average yield between the poorest and best varieties grown for a minimum of six years is 13.9 bushels an acre, or almost 25 per cent based on the yield of the poorer variety, the bulletin points out.

"Even though the superiority of one variety of corn over another often stands out prominently when the two are grown in comparative tests, the problem of determining a high-yielding corn is not so simple as one would at first suppose. Corn is a cross-fertilized plant, and a variety may become mixed unless special care is exercised in isolating from other varieties the crop from which seed is to be selected. When the corn with which a variety becomes mixed has a different color of grain, the mixture is easily detected. When the two have the same color, considerable crossing may occur and many growers be none the wiser. Furthermore, farmers in different vicinities may have varying conceptions of the type toward which a given variety of corn should be selected. Thus in the course of years a kind of corn bearing a certain name, but which has been selected and grown by different farmers, may become as different in type and yielding ability as two wholly different varieties.

"It has been shown by investigations reported in Bulletin 255 of this station, as well as by work of other experiment stations, that there exists within a given lot of a single variety of corn certain types that are higher yielding than others. This difference in yielding ability between strains within a variety is often greater than the difference between two varieties. Because of these considerations it is recognized that variety tests of corn cannot be taken as complete index of the performance of all the strains of any given variety. Nevertheless it is believed that the results of such investigations have a great practical value in indicating varieties that have a definitely superior yielding ability."

George H. Dungan, assistant chief in crop production, and W. L. Burlison, head of the agronomy department, prepared the publication.

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## Illinois Tomatoes Solve Disease Problem In Australia

Something in the way of a new long-distance record is claimed for two varieties of disease-resistant tomatoes which the College of Agriculture, University of Illinois, sent upon request to an Australian grower having trouble with fusarium wilt, one of serious tomato diseases.

Despite the fact that they were sent to the opposite side of the earth and almost as far south of the equator as Illinois is north, the two varieties proved highly satisfactory, producing good yields of high quality fruit when grown on infested soil, according to a report which the college has just received from the grower. That the two varieties should retain their disease resistant characteristics so far from their place of origin is remarkable, according to B. L. Weaver, of the horticultural department of the college.

Horace E. Green, of Hill View, Tooperang, South Australia, is the grower to whom seed of the two wilt-resistant varieties was sent. Fusarium wilt, the disease which had been damaging his crop, is so destructive that it does not pay to grow non-resistant varieties after the disease once gets serious. Accordingly, in the spring of 1926 he wrote the department of horticulture at the college for some seed of disease resistant stock. After 32 days his request reached its destination and seed of two varieties was immediately sent him. One of these varieties was the New Century, a wilt-resistant variety developed by the college itself, while the other was the Marglobe, a resistant variety of the federal department of agriculture. A second letter from Green reporting the satisfactory results with the two varieties has just been received.

Experiments in the breeding of wilt-resistant varieties of tomatoes is one of the many lines of work being carried on by the college horticultural department. The work has been in progress for a number of years and more than 70 individual plant selections have been made from the most promising varieties.

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## Good Cows Must Be Fed As Well In Summer As In Winter

Neglect in feeding and caring for their cows during the summer months piles up heavy losses every year for Illinois farmers, according to C. S. Rhode, dairy extension specialist of the College of Agriculture, University of Illinois. Under-fed, half-starved cows that are forced to eke out a living from poor pastures alone cannot meet the demands of present day efficiency of production. Dairymen themselves have demonstrated that good cows must be well fed in summer as well as during the winter months, if they are to produce most efficiently, he pointed out.

"The most serious summer feeding problem comes when the weather is hot and flies are bad. Progressive dairymen feed enough grain, silage or hay, or combinations of these feeds in addition to pasture to keep the cows from losing flesh and dropping off in milk production. Farm grains such as corn, oats and barley, fed with protein concentrates such as bran, oil meal or cottonseed meal, will make a satisfactory grain mixture.

"Every dairyman also should try to make his cows comfortable in summer. One way to do this is to see that they have plenty of shade. Giving them access to cool, darkened barns during the heat of the day will go a long way toward taking the sting out of the summer fly evil, thereby preventing a reduction in milk flow and a drop in profits."

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X July 13, 1927 Number 28




## Experiments Show How Surplus Crops Make Cheap Farm Power

Hay and pasture from Illinois' increased acreage of soybeans and sweet clover, which at present are in little demand on the market, can be converted into cheap and efficient farm power by being fed to draft horses, it is reported in a new bulletin, "Soybean Hay and Sweet Clover Pasture for Growing Purebred Draft Fillies," which has just come off the press at the experiment station of the College of Agriculture, University of Illinois and is now ready for free distribution to interested persons. The new bulletin gives complete results on the fifth experiment in a series planned to test out different home-grown feeds which fit in with the best methods of farming in the state. J. L. Edmonds, chief in horse husbandry, and his associate, C. W. Crawford, made the tests and prepared the bulletin.

Changes made in the farming practices of Illinois during the past decade have increased the acreage of soybeans and sweet clover to the point where in 1924, the year the experiment started, there were 747,000 acres of soybeans and 240,000 acres of sweet clover, the investigators point out. The large amount of roughage produced by these crops must be fed on the farm where it is grown if its greatest value is to be realized, they add.

"Results of this experiment indicate that soybean hay, properly supplemented, is a satisfactory roughage for growing draft fillies. In fact, a comparison with previous experiments indicates that it is equal to alfalfa for this purpose. When sweet clover pasture was combined with bluegrass, a common pasture crop in this state, the fillies had the advantage of a longer pasture season. The sheaf oats, which were fed continuously, served as a balance at all times.

"As weanlings the fillies ate about 8 pounds each of sheaf oats and soybean hay and 2.3 pounds of grain a head daily. The second winter their daily consumption was more than 9 pounds each of sheaf oats and soybean hay and 3.41 pounds of grain. These amounts produced good gains in height and frame and kept the fillies in thrifty condition. At no time was there a filly off feed. At the end of the experiment the fillies, in medium condition and four of them not yet two years old, averaged 1,484 pounds and stood 15 hands 3.4 inches high.

"Good results in growing young draft fillies may be obtained by moderate, regular feeding of sheaf oats and a legume hay supplemented with a very light feed of crushed oats, bran, and bone meal, judging from the results of this experiment. Furthermore, the value of using sweet clover pasture along with permanent bluegrass seems to be demonstrated. At present prices for the feeds used, growth was cheaply made."

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Maps, pamphlets describing automobile tours and summaries of the Canadian customs regulations are available at the poultry offices of the College of Agriculture, University of Illinois for those planning to motor to the World's Poultry Congress, Ottawa, Canada, July 27 to August 4.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. Mumford, *Director.*

## After Harvest Good Time To Start Purifying Wheat Variety



Most varieties of wheat grown in Illinois are badly mixed with other varieties and consequently the grain produced from them often sells at a discount on the Chicago market, says C. E. Rosenquist, of the agronomy department, College of Agriculture, University of Illinois. Probably the most satisfactory method of purifying a variety is to select heads from the bundle after harvesting, he recommends. This should be a profitable practice, for quite often a premium is paid for seed of a pure variety.

"Heads which are typical of the variety and which are well filled and free from disease should be selected and threshed separately. They may be put through the separator after it has first been well cleaned or they may be threshed by hand. If possible enough heads should be selected to furnish seed for at least three or four drill widths through a field 40 rods long.

"This seed should be sown separately in the fall. One could sow on one side of the field until all the selected seed was sown or he could sow the selected seed in a field by itself.

"This same procedure could be carried on again the next year on the plants grown from the selected seed, in order to further purify the seed, or one could wait four or five years before making another selection. The yield from this seed should be about enough to plant all of the wheat land the second or third year after the selections have been made, depending upon the amount selected in the first place, the next year's yield and the size of the general field.

"Should the farmer have more time for this work before than after harvest, he could select the best, typical heads from the nearly ripe grain in the field and treat them in the way described. The final result by either method should be a much purer variety."

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## Records For 1926 Summarized On 264 Illinois Poultry Flocks

During 1926, a total of 264 Illinois poultrymen, cooperating with their county farm advisers and the extension service of the College of Agriculture, University of Illinois, completed a year's records on their flocks, according to the final summary just prepared by H. H. Alp, poultry extension specialist. Altogether there were 40,480 hens on which a complete year's record had been kept. Rhode Island Reds were in the majority, Leghorns second and Barred Rocks third. The average production per hen was 110 eggs, the average mortality 13 per cent, the average feed cost per hen $1.64, average selling price per dozen market eggs 31 cents and the average profit made per hen $1.54.

While these are very good averages for so large a number of hens, there were some farms realizing little or no profit from the year's work, Alp pointed out. The causes for this were brought out in the records, thus indicating that the flock owner who is keeping records has the advantage over the person who is not. It is an easy matter for him to consult his record and learn just exactly where the management of his enterprise is weak, Alp said.

- M -

## Fair Prizes Are Won Or Lost When Exhibit Is Being Made Up

Prizes which will be offered at coming county and state fairs for exhibits of fruits and vegetables will be won or lost according to the wisdom and care with which specimens for exhibition are chosen, it is pointed out by L. A. Somers, of the horticulture department, College of Agriculture, University of Illinois.

"The three cardinal principles in the selection of specimens for exhibition are trueness to name and type, uniformity of size, shape, color and quality and perfect condition. No one would think of entering a Holstein cow for competition in the Jersey class, yet small round watermelons often are offered as Kleckley Sweets, and long red beets as Crosby's Egyptian. Potatoes in the Early Ohio class should be unmistakably Early Ohios and carrots in the Chantenay class should be at least of the Chantenay type. The specimens should be uniform in all respects. Probably the most common error is the selection of large overgrown specimens to be included with others of normal size for the type and variety. This spoils uniformity and generally lowers the quality of the exhibit very markedly. Not only should specimens be uniform as to size but also as to shape, color and quality. The color should be consistent with type, the deeper colored specimens having preference over the light. Perfection is the only standard for condition of vegetables that are to be exhibited. There is little excuse for presenting deformed, marred, diseased, stunted, bruised or insect- or tool-injured specimens in competition and judges are likely to spend little time on them. The specimens should be chosen from as large a collection as possible. There is a greater probability that six uniform and perfect potatoes will be found in a bushel than in a peck."

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## Powdered Skimmilk, Coccidiosis Treatment, Made In Illinois

An Illinois dairy company has recently installed a milk powder plant and is now manufacturing powdered skimmilk, the use of which is being recommended in the effective control of coccidiosis in chicks, according to Dr. H. A. Ruehe, head of the dairy department of the College of Agriculture, University of Illinois. Many calls have been received at the department relative to the availability of powdered skimmilk. The product which the Illinois company is manufacturing is fresh and of very good quality, according to Dr. Ruehe. The price varies somewhat with the amount purchased. It is packed in 200 pound barrels and the market price in single barrel lots is about 10 cents a pound at the present time. It is suggested that farmers may be interested in pooling their orders.

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## U. S. D. A. Says Cleanup Campaign Got 95 Per Cent Of Borers

Destruction of more than 95 per cent of the European corn borers is estimated as the result of the intensive cleanup campaign waged in five infested states during the four months ending July 2, according to a report to the College of Agriculture, University of Illinois from the federal department of agriculture. Slowing up of the spread of the borer and marked reduction of damage from the pest should naturally follow this successful campaign, says the department. The final result, however, will be determined this fall when records of the spread of the pest and infestation of this year's corn crop can be completed. The campaign, conducted by the department in cooperation with the state agricultural colleges, the state departments of agriculture and more than 300,000 farmers of New York, Pennsylvania, Ohio, Michigan and Indiana, is one of the most intensive ever waged against an insect pest in the United States, the report points out. An area of more than two million acres was involved.

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service



Volume X July 20, 1927 Number 29

## Egg Production In Project Flocks Is Double State Average

Averaging more than twice as many eggs as the ordinary hen of the state lays, the 40,480 Illinois hens on which records were kept last year in the state poultry record project of the College of Agriculture, University of Illinois piled up profits totalling $62,339.20, according to the final summary of the year's work just announced by H. H. Alp, poultry extension specialist. The 40,480 hens were owned by 264 flock owners in all parts of the state who cooperated with their county farm advisers and the college's extension service in keeping records on their chickens. The project is designed to aid the record keepers in putting their flocks on a better paying basis and to demonstrate to their neighbors the merits of success-promoting poultry practices.

An average of 110 eggs was laid by each of the record hens, whereas the average production for all hens of the state is about 50 eggs, according to Alp. The average feed cost was $1.64 a hen and the average selling price of market eggs 31 cents a dozen. The average mortality in the flocks was 13 per cent. Hens of the Rhode Island Red breed were in the majority, while Leghorns were second and Barred Rocks third, according to Alp's summary.

While the averages were good for so large a number of hens there were some farms where the chickens paid little or no profits for the year's work, according to Alp. Reasons for this, as brought out by the records on the individual flocks, were high investment charges per hen, a small number of eggs laid by the hens, poor breeding and improper feeding, a small percentage of hens culled, and a high percentage of mortality, Alp explained. In connection with investment charges, the summary shows that three flocks with investment charges of $30.30, $9.40 and $11.87 a hen, respectively, showed a loss of $2.58 a hen, a profit of only 44 cents and a loss of $3.67 respectively. In contrast, the best one-third of the 264 flocks had an average investment per hen of only $5.05 a hen and showed a profit of $2.85 a hen.

In a similar way, the effect of the other factors on flock profits is brought out in the summary of the records. Thus the flock owner who is keeping records has the advantage over the person who is not, Alp pointed out. It is an easy matter for him to consult his record and to learn just exactly where the management of his poultry enterprise is weak, he explained.

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A notice of recent publications of the College of Agriculture, University of Illinois is being sent to all farm advisers in the same envelope with this issue of the Messenger. At least one adviser requested that this be done and it was thought that other advisers might be able to make use of such a notice. It is the same one that is going to the experiment station's mailing list.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. Mumford, *Director*.

## Advance Preparations Will Help Solve Soft Corn Problem

This is likely to be another soft corn year and now is the time for growers to get the cribs ready and take other steps to handle the crop properly, it is suggested in a statement by George H. Dungan, assistant chief of crop production at the College of Agriculture, University of Illinois. Proper care of soft corn will bring about a wonderful improvement in its quality as compared to ordinary methods of handling, he said.

"Late planting made necessary by wet weather is not the only reason for the threatened softness of the corn crop this year. Another cause is the rather general use of large, late maturing varieties of corn which in many cases are considered high yielders, although a large part of their weight comes from the water they contain. Even though it is a long time until corn husking, farmers may be able to meet the emergency better by giving some thought to the problem now.

"In the first place, soft corn cannot safely be husked as early as mature corn. The ears will dry faster on the stalk than in the crib. Also, late in the season when the weather is cool there is not so much danger of spoilage in crib. Soft corn should be husked clean. Husks, silks and shelled corn fill up the space around the ears and thus interfere with the circulation of air. Throwing out the sappy, rotted ears also is desirable.

"The crib for soft corn should not be more than six or seven feet wide and should have slatted sides and bottom. Ventilators should be installed to facilitate the escape of moisture from the corn. Special apparatus for the utilization of artificial heat should be used in many cases. A description of crib ventilators and a discussion of the effectiveness of forced heated air are contained in Experiment Station Circular 293 of the College of Agriculture, University of Illinois. A copy of this circular will be sent without charge to all those requesting it."

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## New Herd Improvement Association Makes Good First Day

Making good with its members the first day it was in operation is the record of Cook county's second dairy herd improvement association, one of the newer ones in the state, which was organized by Farm Adviser O. G. Barrett in cooperation with the dairy extension service of the College of Agriculture, University of Illinois. Records taken by John W. Ward, tester in the association, brought to light the true worth of a doomed cow owned by one of the association members, H. W. Adams, of Chicago Heights. This cow, a grade Holstein, was stated to be sold after she had milked a few months, because her owner thought she did not give enough milk to justify keeping her. Also, her owner had a heifer calf from this cow that he intended to veal because he considered her dam such a poor cow.

During the first month that the association was in operation this cow which had been accused of not being a worthy member of the herd produced 1,335 pounds of milk and 72.1 pounds of fat. When the month's testing had been completed and all the herds in the association had been covered it was found that this was the highest fat record in the entire association. Not only every cow in Adam's herd, but also in all other herds that are enrolled in dairy herd improvement associations in Illinois has a chance to prove her ability as an efficient milk and butterfat producer, it is pointed out by J. H. Brock, assistant in dairy extension at the College of Agriculture, University of Illinois.

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## Long-Time Records Reflect Value Of Herd Improvement Plan

Continued use of Illinois' dairy herd improvement plan left its mark on herds in the Stephenson County Dairy Herd Improvement Association during the year just past when cows in these herds averaged 2,096 more pounds of milk and 81.6 more pounds of butterfat than was the case in the association four years ago, according to the organization's annual report which has just come in to the College of Agriculture, University of Illinois, where the work of these associations is supervised. Cows in the association averaged 91 per cent more milk and butterfat than the average cow in the state when they finished the year with an average of 9,474 pounds of milk and 327 pounds of butterfat, the report shows.

A full year's testing was completed by 21 members of the Stephenson county association, which is only one of the many now operating in the state. Of this number 15, or more than 70 per cent, had herds that averaged more than 300 pounds of butterfat a cow as a result of the utilization of the information gained from the testing work.

A total of 11,933 pounds of milk and 408.5 pounds of fat was the highest herd average for the association, this production having been made by a herd of purebred Holsteins belonging to J. R. Logan & Sons.

The association's best cow, also owned by Logan & Sons, turned in a record of 24,499 pounds of milk and 847 pounds of butterfat for the year, thereby returning more than $300 above feed cost to her owner.

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## Mule Couldn't Eat Enough Oats To Win Derby, Poultrymen Told

It is about as unreasonable to expect some hens to lay 150 to 200 eggs a year under the pressure of good feeding as it is to expect a mule to win a derby under the stimulus of more oats, says H. H. Alp, poultry extension specialist of the College of Agriculture, University of Illinois. Good feeding is essential, but in order to pay it must be combined with good breeding, he pointed out. In other words, a hen must be bred for her work, he explained.

"The annual summary which has just been completed on the 264 flocks whose owners were enrolled in the state poultry record project during 1926 contains two striking examples of flocks that were handicapped for lack of good breeding, in contrast to a flock that shows the effects of some definite breeding work.

"The two flocks that were handicapped for lack of breeding contained an average of 83 and 97 hens each. The average egg production for each hen in these two flocks was 82 eggs a hen in the case of the first flock and 77 eggs a hen in the case of the second flock. In the first flock 64.2 per cent of the hens were culled and in the second 69.7 per cent. Mortality in the first flock totalled 3.3 per cent and in the second 6.3 per cent. The feed cost was $1.62 a hen and $2 a hen, respectively, for the two flocks, while the respective returns for the two flocks were a profit of only 73 cents a hen and a loss of 30 cents a hen.

"In contrast to all this, the flock that showed the effects of some definite breeding work contained 169 hens that averaged better than 140 eggs each during the year. More than 60 per cent of the hens were culled, while the mortality amounted to 5 per cent. The feed cost was $2.07 a hen and the profits $2.43 a hen."

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service




Volume X July 27, 1927 Number 30



## Illinois Corn Borer Policy Commended To Other States

Illinois' European corn borer policy, which from the first has been one of learning to live with this destructive insect and grow corn in spite of it, has come to be recognized by corn borer workers throughout the infested states as the only sound policy and is now the attitude of these workers in the corn borer control campaign, according to reports brought back by Illinois delegates who attended the corn borer conference held July 20 and 21 at Toledo, O., at the call of extension and regulatory corn borer officials of the federal department of agriculture.

From the time that Illinois first had to take a stand in the corn borer problem, officials of the College of Agriculture, University of Illinois and other state authorities recognized the futility of attempting to completely eradicate the insect. In line with this policy, a circular entitled, "Learning to Live With the European Corn Borer," was published by the agricultural college, this publication having been in press at the time the first and only corn borer was discovered in Illinois. How widely the policy advocated in this publication has now been accepted by corn borer workers in the infested states is shown by the fact that Carlton R. Ball, chairman of the corn borer committee of the federal department of agriculture, in one of the sessions of the Toledo conference commended the Illinois policy to the conference as the attitude that should be taken in all the infested states in future corn borer control work.

While the cleanup campaign in the five infested states during the past spring was reported as without precedent in magnitude, the speed with which it had to be dispatched and the success with which it was rewarded, it was recognized by those attending the Toledo conference that the corn borer eventually will spread to Illinois, according to the report of the Illinois delegates. It was pointed out, however, that while the corn borer situation is serious, it is not alarming.

Proposed regulations for the corn borer control campaign in 1928 were thoroughly discussed by the regulatory officials of the states and federal governments as another feature of the conference. The regulations are largely based on results of the enforcement campaign in Ohio this past year and so far as possible embody the suggestions made in reply to a questionnaire sent to farmers' corn borer committees in the infested counties of Ohio.

In addition to the five infested states of Indiana, Ohio, Michigan, New York and Pennsylvania, the states of Illinois, Kansas, Iowa, Missouri and Wisconsin were represented by delegates. The Illinois group included W. P. Flint, chief entomologist of the Illinois State Natural History Survey; Dr. W. L. Burlison, head of the agronomy department of the agricultural college; F. J. Keilholz, the college's extension editor; O. T. Olsen, superintendent of plant industry in the state department of agriculture; J. E. Pembroke, inspector for the state department of agriculture, and E. D. Turner, assistant director of the state department of agriculture.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. Mumford, *Director.*

## Farm Advisory System Firmly Established In Illinois

Illinois farm advisers, or county agricultural agents, of whom there are now 95, have become an integral part of the state's farming industry, as shown by the fact that the percentage of changes in the ranks of these agents runs lower in Illinois than in other states, it is reported by W. H. Smith, state leader of farm advisers at the College of Agriculture, University of Illinois. During the past six years the number of changes in the ranks of Illinois farm advisers has never exceeded more than 18 per cent of the total number in any one year, which was 1923, while one year, 1922, the changes bulked about 9 per cent of the total number of advisers. Last year the number of changes made among farm advisers in the state amounted to less than 15 per cent of the total number, 14 of the 94 agents making changes. At that, only 10 new men were brought into the work as farm advisers, four of the changes being in the nature of shifts from one county to another, according to Smith.

Chief among the reasons for the low percentages of changes among Illinois farm advisers is the fact that the county farm bureaus of the state are on a financial basis strong enough to make it possible for them to attract more mature and experienced men and continue them longer in service, Smith explained.

Farm advisory work is just now entering its sixteenth year in Illinois. Although there are now 96 organized counties out of the 102 in the state, there are only 95 county farm advisers, since two small counties, Marshall and Putnam, have combined in the organization of a farm bureau and the employment of an adviser. Farm advisory work in Illinois is a part of the state agricultural extension service which is organized and administered by the College of Agriculture, University of Illinois under the federal Smith-Lever law. A feature of the work is the fact that farmers themselves, through their county farm bureau, have participated in an organized way in financing the work, in shaping the policies of the organization and in building programs of work.

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## Tested Cows Produce True To Form Shown In Their Records

Figures didn't lie in the case of the 15 Holsteins making up the herd of Kaufman Brothers, Carroll county farmers and dairymen living near Mount Carroll. When the brothers went into the dairy farming business, every cow they added to their herd was bought on the strength of the production record which she had made in another herd. The result was that when the Carroll County Dairy Herd Improvement Association recently completed a year of testing for its members, the Kaufman herd had the highest average production of any herd in the association.

The annual report of the Carroll county herd improvement association just received at the College of Agriculture, University of Illinois, where the work of these associations is supervised, shows that the average production for each cow in the Kaufman herd last year was 10,749 pounds of milk and 396.3 pounds of butterfat, giving them a return of $145.01 a cow over and above the cost of feed.

It cost but 21 cents to produce a pound of butterfat in the Kaufman herd, whereas the average for all cows in the association was approximately 25 cents a pound, it was pointed out by J. H. Brock, assistant in dairy extension at the college. Fifteen cows in the Kaufman herd returned as much above cost of feed as did 27 average cows in the association or 43 cows in the lowest producing herd in the association, he explained. In addition to having the highest producing herd in the association, Kaufman Brothers had the only three cows in the association that produced more than 500 pounds each of butterfat.

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## Earnings Paid By Illinois Poultry Flocks Vary Widely

Wide differences in the degree of success with which different farmers handle their poultry operations are indicated by the fact that the one-third best flocks among the 264 entered last year in the state poultry record project returned their owners an average profit of $2.85 a hen, whereas the one-third poorest flocks in the group returned an average of only 16 cents profit a hen. The average profit when all the flocks were considered was $1.54 a hen. The object of the project, which is conducted by the extension service of the College of Agriculture, University of Illinois, in cooperation with county farm advisers and interested poultrymen, is to demonstrate to all farmers of the state the merits of recommended poultry practices. The annual summary of the records kept by the 264 flock owners during the past year has just been prepared by H. H. Alp, poultry extension specialist.

For purposes of comparison, the one-third best flocks and one-third poorest ones were separated out of the group. The best flocks averaged 152 hens each as compared with 128 hens each for the poorest flocks, hens in the best flocks laid an average of 116 eggs each during the year as against 103 eggs each for hens in the poorest flocks, 52 per cent of the hens in the best flocks were culled out and only 46 per cent in the poorest flocks, while only 12 per cent of the hens in the best flocks died as against 16 per cent in the poorest flocks.

For the best flocks, the labor income from poultry averaged $513.59 a farm as compared with only $133.86 a farm in the case of the poorest flocks. The labor income per hen was $3.38 in the case of the best flocks and only $1.04 in the case of the poorest flocks. Poultry profits amounted to an average of $433.17 a farm in the case of the best flocks and only $20.60 a farm in the case of the poorest flocks. The average farm investment in poultry was higher in the case of the poorest flocks than it was for the best flocks, but the best flocks showed more total cash receipts a hen than the poorest flocks. The investment in poultry was $767.31 a farm and $811.25 a farm, respectively, for the best and poorest flocks, while the total cash receipts per hen amounted to $4.98 and $3.60 respectively, in the case of the best and poorest flocks. The best flocks showed a lower feed cost, less cash expense and greater net receipts per hen than the poorest farms, with the result that the returns per hour of labor were $1.36 in the case of the best flocks as against only 29 cents an hour in the case of the poorest flocks.

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## 12,850 Illinois Cows Must Show Profit On Feed Eaten

With two new county associations recently organized, Illinois now has 30 active dairy herd improvement associations in which 12,850 cows are being held responsible to their owners for the feed they eat and the profits they return, it is reported by J. H. Brock, assistant in dairy extension at the College of Agriculture, University of Illinois, where the work of these associations is supervised. The two most recent additions to the list of associations were made in Cook and Iroquois counties. The 30 associations have members located in 44 counties who are the owners of 781 herds. The present number of 30 associations represents an increase of five since January 1, 1926, and an increase of two since January 1 of this year, according to Brock. Cook county has the distinction of organizing two new associations since the first of the year. In addition to Cook, there are three other counties, DuPage, McHenry and Will, each of which has two associations in operation at the present time.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X August 3, 1927 Number 31



## Self-Feeder Styles And Uses Discussed In New Circular

Hogs are one class of animals that can eat cafeteria style without overloading their digestive capacity, and consequently the self-feeder has come to be a standard piece of equipment on the hog farm, it is pointed out in a new circular, "Construction of Self-Feeders and Their Use in Pork Production," which has just come off the press at the College of Agriculture, University of Illinois and is now ready for free distribution to interested persons.

Successful use of self-feeders in hog raising is made possible, the circular explains, by several facts: (1) hogs' appetites are persistent and regular even in the face of heavy feed consumption; (2) they are not easily thrown off feed; (3) they have the capacity to eat large amounts of feed without injury, and (4) they can convert these large amounts of feed economically and store them as body tissue and fat.

Chief among the advantages of self-feeders for hog feeding is the fact that they save time and labor and speed up the gains made by the hogs, according to the authors of the circular. Figures from one test are cited to show that approximately three times as much labor was required to hand-feed as to self-feed a given number of pigs for the same length of time. Also, self-fed hogs finish for market somewhat more quickly than hand-fed hogs, yet they take no more feed for 100 pounds gain.

Although self-feeders are best used for fattening hogs, they also serve excellently for suckling pigs and for brood sows, provided care is taken in selecting the ration that is put before pregnant sows, the new circular points out. The importance of visiting self-feeders once a day when they are in use, of placing them near the water supply and of watching them in muddy weather also is brought out.

Supplementing the discussion on the merits and use of self-feeders is a detailed explanation of the construction of them. Stability, capacity, simplicity, durability and cleanliness are taken up and discussed in turn. Both perspective and working drawings on a wide variety of feeder types are given, as well as bills of material to fit the working drawings.

Dr. W. E. Carroll, chief in swine husbandry, and W. A. Foster, farm building specialist in the farm mechanics department, prepared the circular. It may be obtained upon request by writing the college at Urbana.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Storing Sheaf Oats Cuts Expenses And Improves Rations

Farmers can save themselves considerable expense in storing oats for horses if they will put the grain in the barn in the bundle without threshing, it is pointed out by E. T. Robbins, livestock extension specialist of the College of Agriculture, University of Illinois.

Added to the saving in storage expense is the fact that legume hay rations for farm horses may be made more effective, safer and cheaper by feeding sheaf oats or oat straw along with the legume hay. Such use adds to the value of the oats crop and makes the nutritious legume hay go farther. This has been brought out in experiments in the feeding of purebred draft fillies made by J. L. Edmonds, and C. W. Crawford, of the college animal husbandry department.

A wide use of sheaf oats last year would have cut feed bills generally, it is recalled by the college animal husbandrymen. Rainy weather prevented threshing, the oat shocks were badly damaged by rain and when finally threshed yielded a very poor quality of straw and oats. Consequently many farmers bought oat straw at $15 a ton or more from a few of their neighbors who were lucky enough to have threshed before the rains. The few who had stored sheaf oats had good, sound feed instead of the poor quality which was generally used.

"In storing sheaf oats in the mow of the horse barn, some precautions should be taken to keep out rats and mice, which not only may eat the grain but also ruin a considerable amount in addition. Scattering hydrated lime over the successive layers of sheaves as they were put in the mow has almost eliminated the damage from this source during the several years experience at the agricultural college. One year the hydrated lime was weighed and it was found that 250 pounds had been scattered through 34 tons of sheaf oats. In feeding, much of the lime is shaken off and the palatability of the feed does not seem to be injured in the least.

"Another aid in keeping down the damage from rats and mice is to avoid piling hay or straw against the pile or stack of stored sheaf oats."

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## Beekeepers To Hold Meeting At Dadants August 9, 10, 11

Illinois' internationally known beekeepers, the Dadants, of Hamilton, will be host to a meeting of beekeepers from Illinois, Wisconsin, Iowa, Minnesota, and Missouri, to be held there August 9, 10, and 11, according to the program announced by the College of Agriculture, University of Illinois. The meeting is the second of a series of summer ones being held for beekeepers of the five states. National authorities on different phases of the beekeeping business will be features on the program.

Addresses by the presidents of the beekeepers' associations in the five states will make up an important part of the program. The list includes James Gwin, Dr. A. C. Baxter, N. Williamson, S. M. Mommsen, and A. B. King, the respective presidents of the state associations in Wisconsin, Illinois, Iowa, Minnesota, and Missouri. Other Illinois speakers in addition to President Baxter include V. G. Milum, apiculturist at the University of Illinois, and A. L. Kildow, state inspector of apiaries, Springfield. One of the attractions of the meeting will be a trip to the Dadant apiaries and through their bee supply factory. The program of events will open at 11 o'clock August 9, and close at noon August 11.

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## 4-H Club Members Will Judge Livestock For Big Stakes

Two free trips to national livestock shows and $200 in cash prizes and medals will be at stake among farm boys and girls of Illinois when county teams representing the 13,000 boys' and girls' club members of the state gather August 8 for the third annual state 4-H club livestock and dairy cattle judging contest to be held by the College of Agriculture, University of Illinois. Keener competition is expected this year, in view of the fact that more teams than last year will make a bid for a share of the prizes. Last year 27 teams were entered, but prospects this year are for a field of 30 or 35 teams, according to club officials of the college who have charge of the contest.

As in previous contests, the one this year will be divided into fat stock and dairy cattle divisions. Competition in both divisions will be by teams of three members each. A trip to the Chicago International Livestock Exposition to represent Illinois in the non-collegiate livestock judging contest will be the chief prize sought by teams in the fat stock division of the contest. The winning team will receive $50 toward the expenses of the trip. In addition there will be a $10 cash prize for each of the teams finishing second to fifth, inclusive. The winning team in the dairy cattle division will get $50 toward the expenses of a trip to the National Dairy Show, Memphis, Tennessee, to represent the state in the national non-collegiate and non-high school dairy cattle judging contest. Prizes of $10 each also will be awarded to the second and third teams, while the high ranking individual in the dairy cattle division will be given a medal.

Medals also will be awarded to members of both the winning fat stock and dairy cattle teams, while a properly inscribed shield will be awarded to each of the teams. These shields will become the personal property of the teams winning them three consecutive years. The shield for the livestock team was won by Iroquois county in 1926 and by Bureau county in 1925, while the dairy cattle shield went to Bureau county in 1926 and to DeKalb county in 1925.

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## First Membership In Select Cow Club Goes To Peoria

With her allotted year only half up, one Illinois dairy cow already has produced the required amount of butterfat to win her owner a membership and the gold medal in the Illinois 500 Pound Butterfat Cow Club, it is announced by C. S. Rhode, dairy extension specialist of the College of Agriculture, University of Illinois, who has charge of the club. The first cow to come under the wire for a membership in the club is a purebred Holstein in the herd of J. R. Logan and Son, Seward, Peoria county. Her production for the first six months of the allotted year is 548.8 pounds of butterfat and 16,204 pounds of milk, according to the records announced by Rhode.

Now in its third year of operation, the 500 pound butterfat cow club is designed to give the state's high producing cows the recognition that is due them and at the same time to demonstrate to farmers and dairymen that economical milk and butterfat production is the result of good breeding, proper feeding and careful management. At the beginning of the year, 432 cows owned by 135 farmers and dairymen in 21 counties of the state were nominated for membership in the club. The requirement for membership and the gold medal is a record of 500 pounds of butterfat before the end of the year. Of the 432 nominated cows, 65 of them have reached the half-way stage of the race with a record of 300 or more pounds each of butterfat and therefore are making a strong bid for the club honors, according to a summary prepared by Rhode at the end of the first six months.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X August 10, 1927 Number 32


## One-Fourth Or Less Of Illinois Corn Fairly Certain Of Maturing

With only about two months left before the first freeze of the season can be expected, not more than one-fifth to one-fourth of the corn in Illinois is fairly certain to mature a crop, it is reported by crops specialists of the College of Agriculture, University of Illinois. About two-fifths of the corn in the state is hopelessly behind in the race with Jack Frost and offers little prospect of maturing a crop, even if the first freeze of the season should be delayed beyond the normal date, the specialists said.

Of chief concern to farmers is the seed corn shortage which is threatened by the present situation, it was pointed out. Farmers who have relatively early planted corn that promises to mature at about the normal date therefore should begin making preparations for storing large quantities of it, it was recommended.

The figures on the crop's prospects are based on counts made the first week in August on 654 fields in McLean, Tazewell, Peoria, and Fulton counties by J. C. Hackleman, crops specialist, and upon similar counts made during the last of July on 469 fields in Fulton, Tazewell, Woodford, Livingston, Champaign, Douglas, Coles, Moultrie and Shelby counties by J. D. Bilsborrow, assistant state leader of farm advisers. All of these counties are either in or near the heart of the Illinois corn belt.

Only 134, or 20 per cent, of the 654 fields covered in the count made by Hackleman were in tassel at the time the count was made. Nearly one-third of the fields in the remaining 80 per cent will require from two to three weeks longer before the corn in them will be in tassel, while another third of the fields will require even longer before tasselling, as the corn in many of them is not even knee high, Hackleman said.

Only those fields that were in tassel at the time the counts were made can be considered relatively certain of maturing a crop, on the basis of the time required for maturity and the normal date of the first killing frost, Hackleman pointed out. After tasselling, corn requires from 60 to 65 days to mature a crop. The average date of the first killing frost is October 15 through central northern Illinois and October 16 through central Illinois, he said.

While only about one-fifth of the corn in the counted fields can be considered as fairly certain of making a crop, there is another fifth that may come through if the weather is favorable between now and the normal date of the first killing frost, Hackleman said. There is another fifth of the acreage that will have to have favorable growing weather and a delay of two to three weeks in the date of the first frost before it can be expected to mature a crop. The remaining two-fifths of the acreage is apparently hopeless so far as a crop of mature grain is concerned, he said.



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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Bulletin Cites Way To Overcome Gluts And Depressions in Hog Market

Periodic gluts and depressions of the market, which are now proving one of the great handicaps to profits in Illinois' "million dollar" hog industry, are the target of a new bulletin just released by the experiment station of the College of Agriculture, University of Illinois. The new publication, "Adjusting Hog Production to Market Demand," sets forth four suggestions designed to aid farmers of the state in stabilizing market conditions and thereby making pork production a more profitable part of the farm business:

The four suggestions are:

1. Adjust production from year to year according to the outlook for hog prices rather than be influenced too much by past prices or by prices prevailing at the time of breeding.

2. Take into account changes from year to year in price relationships between hogs and other enterprises such as cattle, sheep, corn, etc., and select from those alternative lines of production one or more which give promise of yielding the greatest net return to the farm business as a whole.

3. Sell hogs, in so far as costs and prices justify, in those months when hog prices usually are the highest.

4. Vary the weight to which hogs are fed out and marketed according to the relationship between corn and hog prices.

Illinois farmers each year produce and send to market from 4 to 6 million hogs which return a gross income of from 70 to 100 million dollars, the bulletin points out. It is apparent, consequently, that anything which affects the profitableness of hog production is of vital concern to the Illinois farmer, it is pointed out.

Obviously, one of the first things that producers can do to remedy the periodic gluts and depressions of the hog market is to become better informed about the factors that bring about market changes and then adjust production more in line with the demands of the market, it is pointed out by the author of the bulletin, F. F. Elliott, formerly a member of the college farm organization and management department.

The periodic shifting up and down in the supply and price of hogs about every 15 to 18 months indicates that the majority of farmers respond to current market conditions rather than to those likely to prevail when the hogs are ready to market. Also, many producers fail to plan production so as to take advantage of the better seasonal markets.

"Adjustment to seasonal demand, however, is only one phase of the adjustment problem. A more important one is that of balancing up production to coincide more closely with changing price conditions from year to year.

"With the information now available and becoming available in increasing amounts on the market outlook, intentions to breed, pigs farrowed and saved, etc., the farmer has the means of determining with a fair degree of accuracy when is the strategic time to change."

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## Heavy Tax Toll Is Exacted From Farmers On Poor Quality Cream

Although the state gas tax is the most recent one to go into effect, gasoline isn't the only liquid on which Illinois farmers pay a tax, it is pointed out by F. P. Sanmann, of the dairy department, College of Agriculture, University of Illinois. Poor quality cream has for a long time been exacting a toll from farmers and dairymen of the state without many of them actually knowing it, he explained.

"It takes extra machines, materials and labor to make a marketable butter from poor cream, and this extra burden of expense goes back to the farmer by way of lower prices for his cream," he pointed out. "Furthermore, the best butter, which brings several cents a pound more on the market than the poorer grades, can be made by creameries only from the best cream. Thus if creamerymen got only high quality cream, they would be in a better position to pay a higher price for it.

"To produce the best cream, the farmer should keep it clean and cold and deliver it at least three or four times a week. Bacteria are the principal agents causing spoilage of cream. If the cream is kept clean, fewer bacteria will get into it. If it is kept cold, the bacteria which do get in cannot grow and multiply very rapidly. If it is marketed promptly, there will be only a short time for the bacteria to work.

"Utensils and separators should be cleaned thoroughly every time they are used. It should be remembered that the cream is to be made into a food for people to eat.

"Cream should be cooled promptly to 50 degrees or lower. A thermometer should be used to make sure of the temperature. Fresh cream should be cooled before being added to cold cream. Otherwise it may warm the whole lot enough to start the bacteria growing rapidly.

"Creameries often are criticized for accepting inferior cream and making it into butter. This, however, does not excuse the producer who offers such cream for sale. The cream producer is responsible for the quality of his cream as long as it stays in his possession."

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## Efficiency Of "Tried" Cows Increases Their Value $776,036

Because of their added efficiency as producers, the 12,198 cows which were on test last year in the various dairy herd improvement associations of the state were worth $776,036.76 more, on the basis of milk production, than a like number of average cows of the state, according to the annual state report for the dairy herd improvement association work just released by C. S. Rhode, dairy extension specialist of the College of Agriculture, University of Illinois, who has charge of these associations. Cows in the associations averaged 72 per cent more milk than is produced by the general run of cows in the state, thus indicating that the dairy herd improvement work is boosting the efficiency of the member's herds, the report points out. This added production was valued at $2 a hundred pounds to arrive at the increased value of the cows in the associations.

The average production of all cows in associations which finished a year's work between January 1, 1926, and December 31, 1926, was 7,566 pounds of milk and 288.4 pounds of fat, according to the report. The average feed cost a cow was $77.53; the average value of product $187.65, and the average return above the cost of feed $110.12.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X | August 17, 1927 | Number 33


## Agricultural Education Retains High Value, Despite Farm Price Slumps

Prices of some agricultural products may have slumped but an agricultural college education is still worth about $9.25 a day in earning power to the graduate, according to officials of the College of Agriculture, University of Illinois. "It has been said, based on studies made by educational authorities, that the boy who graduates from college has increased his daily earning capacity about $9.25 over that of the high school graduate. Thus, on a cold-blooded business basis, every boy had better go to college unless he is able to earn considerably more than $9 a day without such training. As it is now, more than 80 to 90 per cent of the boys and girls drop out of school without much thought of increasing their earning power."

"Other things besides increased earning power, however, are involved in the question of a college education", it was pointed out. "Country life is being revitalized and redirected and the leadership of agriculture and industry in the future will be in the hands of men and women who avail themselves of the educational opportunities provided by their fathers and mothers in the opinion of college officials. Looking into the future, the young man of today is confronted not only with a question of increasing production or efficiency on the farm. In addition, there is the matter of building up a strong, permanent and intelligent leadership in agricultural communities. In short, the general trend is to give more attention to the importance of the human side of agricultural progress and industry, which in turn will have a profound effect upon the work of all agencies of agricultural and industrial education. One manifestation of this broadening influence is the work of the various civic and commercial clubs, farmers' institutes and the boys' and girls' club work in its various forms.

"As some one has pointed out, a farm boy will be interested in a college education because he will be benefitted by it whether he wishes to continue farming or not. But if he does not wish to farm he should seriously consider taking advantage of his farm experience before he scraps it and fits himself for something in which he has had no early training. Some idea of the opportunities open to the agricultural college graduate can be gained from the variety of positions taken by students who finished the four-year course this past June. A goodly number went back to the farm, but there were others who went into farm advisory work, farm implement manufacturing companies, teaching, cow testing, public utility companies, corn borer control work, floriculture and experiment station work. Others elected to continue their college training even farther and took up graduate courses. Thus a high school senior who takes agriculture as a college course may expect that such a course not only will put him in much better shape to farm but that it will open up to him also a very considerable number of interesting and well paid positions in other lines of work, if he does not wish to farm."

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## First Purnell Bulletin In Illinois Discusses Corn Storage Costs

Shrinkage of the grain and changes in the grade of it while it is in storage are the two most important factors, outside of chances for changes in the corn price level, in deciding the question of the best time to sell corn from the farm, according to L. F. Rickey, grain marketing specialist of the College of Agriculture, University of Illinois, and author of a new bulletin, "Costs of Storing Corn on the Farm," which is to be released soon by the experiment station of the college. Three other items which also must be considered are interest on the money tied up in the corn, interest and depreciation charges on the cribs used, and insurance against loss from fire and storms, Rickey points out in the bulletin.

The new publication is the first one to be issued by the experiment station under the enlarged program of research in social, economic and distribution fields made possible by the passage of the Purnell Act by Congress in February, 1925. After discussing some of the fundamental principles involved, the bulletin gives examples of how to figure storage charges when corn is sold on the ear at 70 pounds to the bushel, when it is sold on the ear at 75 pounds to the bushel, when ear corn is sold according to grade, and when corn is sold on the shelled basis.

Taking up the two most important factors of shrinkage and grade, the publication points out that since corn may contain anywhere from 18 to 30 per cent or more of moisture when cribbed, depending upon the maturity of the crop and on weather conditions, it is inadvisable to figure shrinkage on the basis of averages.

"Well-matured ear corn gathered late in the season may be expected to shrink about 13 per cent from the time it is cribbed until the following summer. Corn which is not so well-matured and hence contains more moisture but is still good enough to keep well under proper storage conditions, may be expected to shrink as much as 20 to 21 per cent during the same period. The problem of shrinkage when corn is sold on the shelled basis is entirely different from what it is when sold on the ear. The cobs shrink more in weight than the kernels, so that the proportion of loss of weight is less for the kernels than for the entire ear. Thus when corn is sold on the shelled basis, the shrinkage to be allowed for is reduced to between two-thirds and three-fourths as much as for ear corn. Because the moisture content of ear corn is lowered during storage, the grade usually will be raised. This constitutes a factor of profit in that the discount on the lower grade is avoided. The additional return is often enough to offset nearly all or even all of the costs of storage. It must be remembered, however, that if the corn goes out of condition or is otherwise materially damaged during storage the grade will not be raised and may even be lowered. If the grade is not raised, the corn will be subjected to a discount, and if the grade is actually lowered, there will even be an additional loss."

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## Threshing Labor Differences Can Be Settled In Three Different Ways

Amounts of labor furnished and received by members of a threshing ring will show wide variations, even though each member aims to furnish help about in proportion to the amount of grain he has to thresh, says R. C. Ross, of the farm organization and management department, College of Agriculture, University of Illinois. Some fair settlement of labor differences therefore must be made between members and there are three methods that can be used, he pointed out.

The first of these is the bushel basis. A second method for settling labor differences is the acre basis. The time basis is the third method and this requires a timekeeper who records the hours of labor furnished by each farmer to the other members of the ring. Illustrations of how each of these plans works may be secured by writing the college.

## Rich Prize List Will Draw Many 4-H Club Members To State Fair

Eager to show the results of their year's work and get a share of the $5,806.50 which has been posted as prize money for them, more than 500 farm boys' and girls' club members from approximately 65 counties of the state are expected to compete and exhibit in the junior department of the Illinois State Fair, August 20 to 27, it is announced by W. H. Smith, state leader of farm advisers at the College of Agriculture, University of Illinois, and superintendent of the department. Close to 13,000 farm boys and girls of the state this year are enrolled in the various junior club farm and home projects sponsored by the agricultural college and the best of the talent from this group is expected at the fair. Fourteen major classes, ranging from a a swine show to a girls' style show, have been provided for the club members.

Although the swine show carries the biggest prize list - a total of $1,360 - the baby beef show is expected to be the feature event in the junior department. There are about 1,350 baby beef club members in the state and at least 100 of them are expected to enter their calves in the competition.

Of first interest to the girls will be the style show in which Sybil Herring, Cuba, Fulton county, was adjudged the winner in 1926. One bona fide clothing club member from each county will be allowed to enter this contest, but she must have made the clothing in which she will model.

One of the three divisions of the junior department in which more than $1,000 will be offered in prize money is the class for county demonstration teams. The winning team in both the boys' and girls' divisions will get $50 each toward the expenses of a trip to represent Illinois in a national contest at the next Chicago International Livestock Exposition. Other classes and their prize lists in the junior department are dairy calf, $700; sheep, $333; draft colt, $100; poultry, $171.50; livestock showing, $70; canning, $40; clothing, $112; girls' club outfit, room improvement and style show, $131; clothing judging, $78; health contest, $55, and county booths, $270. A boys' and girls' club camp for the junior exhibitors and contestants will be one of the features of the junior department. C. E. Gates, boys' club specialist of the agricultural college, will be in charge.

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## Macon And DeKalb Counties Awarded State's Championships In Judging

Competing against 17 other teams, the Macon county team, won the state championship in fat stock judging in the third annual state judging contest for boys' and girls' club members held last week at the College of Agriculture, University of Illinois. DeKalb county, which has finished well up in the contest each year that it has been held, captured the state championship in dairy cattle judging from a field of seven other teams. Farm Adviser E.H. Walworth and L.W. Shutter coached the winning fat stock team, while Assistant Farm Adviser R.C. Nelson trained the winning dairy judging team. His fat stock judging team took fourth in that division of the contest. The Macon county team will represent the state in a national contest to be held at the next Chicago International Livestock Exposition, while the DeKalb county team will be the Illinois entry in a national dairy cattle judging contest to be held in connection with the coming National Dairy Show in Tennessee.

The ten ranking teams in the fat stock division were: Macon, Sangamon, Peoria, DeKalb, Shelby, Mercer, Knox, McLean, Bureau and a local club team from Chenoa, McLean county. The rank of the eight teams in the dairy cattle division was: DeKalb, Bureau, Vermilion, Bureau, McLean, Peoria, Tazewell and Iroquois.

# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X | August 24, 1927 | Number 34

## Hessian Fly Again Scarce But Could Stage Comeback

Although in a good position to stage a strong comeback in future years, if given favorable conditions, the Hessian fly, wheat's worst insect pest, this year is again scarce enough to threaten but very little damage to the crop that will be planted this fall, it has been found during the annual wheat insect survey conducted during the first two weeks of August by entomologists of the Illinois State Natural History Survey in cooperation with federal entomologists.

Although the fly has caused very little damage in Illinois during the past few years, the insect could again become serious if the recognized "safe" dates of seeding, or the dates for maximum yield, were ignored and early seeding generally practiced in any section of the state, W. P. Flint, chief entomologist of the Survey, says in a statement which the College of Agriculture, University of Illinois has just sent to farm advisers of the state.

The statement adds that the "fly-free" dates for the various sections of the state, or the dates after which wheat should be planted to escape severe damage by the Hessian fly and still be early enough to withstand the winter, will hold very closely to those announced for previous years.

Even distribution of the Hessian fly over all sections covered was one of the outstanding conditions revealed by the wheat insect survey, it is reported. In southern Illinois, where the infestation is the lightest, a little less than one-half of the fields showed infestation, but in other sections of the state nearly all fields contained fly in small to moderate numbers. The percentage of fly killed by parasites or other causes was fairly high in southern Illinois and about normal in other sections.

The state average for Hessian fly infestation this year is about 4.29 per cent, a figure close to the one which obtained last fall, according to the report. In other words, out of every 100 wheat stems in the state four now contain "flax seeds" of the Hessian fly from which a brood of adult flies will begin emerging this fall, it is explained.

There has been a slight increase in Hessian fly infestation in eastern Illinois counties, while the infestation in the central and west central counties is about the same as last year, according to the report.

"Summing up the results of the survey, we apparently will have very close to a normal emergence of Hessian fly this fall. That is, the brood will be rather well bunched and not scattered out as is the case some years. There is likely to be a moderately heavy infestation in early sown wheat in the eastern and central parts of the state with a light infestation in early sown wheat in southern and western Illinois."

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. Mumford, *Director.*

## Special Soybean Day To Be Held At U. of I. Sept. 22

Soybeans, which have spread in acreage and importance until they now rival "king" corn in some Illinois counties, are to have a day of their own at the College of Agriculture, University of Illinois, September 22, it is announced by the crops division. Many of the more important soybean handling problems which have sprung up as a result of the rapid rise of the crop will be discussed for farmers and growers by specialists of the college, by commercial seedsmen and, it is hoped, by representatives of the federal department of agriculture. An added feature of the day's program will be the attention that is given to the threatened seed corn shortage.

Starting with the question of seed inoculation, the soybean phase of the day's program will take up a half dozen or more important problems up to and including the question of whether or not farmers are likely to grow too many soybeans. Soybean inoculation, soybean variety trials, soybeans as an aid in insect control, the solution of some of the soybean harvesting problems and the creation of new soybean varieties are subjects to be discussed in turn by O. H. Sears, J. C. Hackleman, State Entomologist W. P. Flint, I. P. Blauser and C. M. Woodworth, all of whom, with the exception of State Entomologist Flint, are staff members of the agricultural college. The question of whether or not farmers are likely to grow too many soybeans will be discussed by I. C. Bradley, of Funk Brothers' Seed Company, Bloomington, after which Hackleman will conclude the soybean program with a talk on, "When and How Shall We Grow Soybeans?"

In opening up the discussion of the seed corn problems, Dr. W. L. Burlison, head of the college agronomy department, will discuss investigations now in progress at the college on the corn borer and soft corn. Corn disease investigations and the selection and care of seed corn are other subjects listed for discussion. H. W. Mumford, dean of the college and director of the agricultural experiment station, will open the day's program with a speech on, "Your Experiment Station". A special effort is being made to get W. J. Morse, of Washington, D. C., who is in charge of soybean investigations for the federal department of agriculture, for the meeting.

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## Fall Army Worm May Attack Newly Sown Alfalfa Crop

This season has been very favorable for the development of the fall army worm, or grass worm, and Illinois farmers therefore are likely to have trouble with this insect attacking newly sown alfalfa fields, entomologists of the Illinois State Natural History Survey state in a warning which the College of Agriculture, University of Illinois has just sent out. All alfalfa sown during August or September this year should be closely watched for the first two or three weeks after it comes up. If greenish or brownish black worms are found feeding on the young alfalfa, a poison bran mash should be immediately sown over the field, the warning points out. "The poison bran bait, which easily kills the fall army worm, is made by mixing together 1 quart of sodium arsenite solution, 3 gallons of water and 2 quarts of molasses. After these have been thoroughly mixed, 25 pounds of bran should be poured in. The water, molasses and poison should be thoroughly stirred into the bran so that every particle of it is wet. The bran should be sown over the alfalfa field at the rate of about 10 pounds to the acre. If the sodium arsenite solution cannot be obtained, 1 pound of Paris green should be used instead, the Paris green being thoroughly mixed with the bran before the water and molasses are added."

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## Poor Wheat Yields Traced To Stinking Smut, Or Bunt

Disappointing wheat yields which farmers in most parts of central Illinois and other sections of the state have been getting this season are due, in part at least, to stinking smut, or bunt, in the opinion of J. C. Hackleman, crops extension specialist of the College of Agriculture, University of Illinois. This presents a serious problem and one which threatens the success of next year's crop unless farmers take steps to clean up their seed wheat before it is sown this fall. Farmers should screen and grade their wheat seed, thoroughly blowing out all of the smutted kernels, and then treat the seed either with copper carbonate or with formaldehyde, he said.

"If the grain is very badly infected with bunt and a large number of light weight kernels remain in the seed after screening, it probably will be advisable to use the soaking method of treatment, floating out the light weight kernels and then thoroughly treating the heavy kernels that remain. This method is described in Circular 288 of the agricultural college.

"If the grain is not too badly infected, the copper carbonate treatment is much simpler and easier to apply than the soaking method. Copper carbonate treatment consists of dusting two ounces of the very finely powdered carbonate dust to each bushel of wheat. The chemical must be thoroughly spread over each seed. To accomplish this, some form of mixing machine must be used. A barrel placed on an axle with a trap door on one side makes a very satisfactory mixing machine. The trap door should be made with a hasp so that it can be fastened down tightly and a crank attached to one end of the axle. By revolving this barrel with one and a half to two bushels of wheat in it, the operator can treat seed wheat quite fast.

"Copper carbonate is a poison and care should be taken in handling it. Persons treating seed wheat with this dust should protect the nose and throat by wearing some sort of dust mask. A wet handkerchief tied over the face in such a way to cover the nose and mouth is very good."

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## Daughters Come To Rescue Of Purebred Dairy Sire

Past records of his daughters recently saved the life of a "father" on an Illinois farm and incidentally prolonged the usefulness of a purebred sire to the dairy industry, according to the incident as related by John H. Brock, assistant in dairy extension at the College of Agriculture, University of Illinois. Herr Brothers, dairymen living near Quincy and members of the Adams-Hancock Dairy Herd Improvement Association had a purebred Jersey bull which they planned to send to the butcher for beef because they had several daughters of this sire that were of breeding age. When this was brought to the attention of M. C. Weber, former tester for the association, he reminded the owners that the records of the daughters indicated they would surpass their dams in milk and butterfat production, thus indicating that the bull was a valuable one for herd improvement. At about this time another member of the association was in the market for a tried sire and was tipped off about the Herr Brothers' bull. He looked over the sire, his daughters and their dams and finally closed the deal, thus giving Herr Brothers better than beef prices for the bull and insuring the new owner that he was getting a sire of known breeding ability.

As mature cows, three of the dams involved in the case of the bull had averaged 326.7 pounds of fat, according to their records in the dairy herd improvement association, while their two-year-old daughters averaged 258.4 pounds of fat. When figured on a mature equivalent basis, the production of these heifers was an increase of 10 per cent over the production of their dams, according to Brock. Their dams in turn had produced 50 pounds more fat than an average cow in all the dairy herd improvement associations.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X August 31, 1927 Number 35



## Farmers Warned Against Stampede To Early Wheat Planting

Fears of another wet season such as delayed andprevented wheat seeding in the fall of 1926 should not be allowed to stampede farmers into planting early this fall in an attempt to get around the handicap of bad weather, W. P. Flint, chief entomologist of the Illinois State Natural History Survey, reminds growers in a statement just issued through the College of Agriculture, University of Illinois.

Early seeding practiced generally in any section of the state would pave the way for a strong comeback by the Hessian fly, wheat's worst insect enemy, he explained. Infestations of the fly have been light during the past few years because farmers have observed the fly-free, or "safe", dates of seeding wheat and have thus worked together in keeping down damage by the pest, he added.

Maps showing the recommended dates on which wheat should be seeded in various sections of the state in order to escape severe damage by the Hessian fly and still be early enough to withstand the winter have again been prepared by the Natural History Survey for interested farmers and others. As was the case last year, the earliest of these dates is September 17 and it applies across the extreme northern edge of the state. The line gradually moves southward at the rate of about 13 miles a day until the line for September 30 runs straight across the state through the northern part of Pike and Scott counties, the central part of Morgan and Sangamon counties, the northern part of Christian county, the southern part of Macon county, the northern part of Moultrie county, the central part of Douglas county and the northern part of Edgar county.

The line continues southward at the rate of about 15 miles a day until when the extreme southern tip of the state is reached, the recommended date for seeding is October 12.

The dates not only are those which mean freedom from fly infestation but also maximum yield, Flint pointed out. This has been discovered by means of date-of-seeding tests run for 10 years in different parts of the state. These tests show that wheat sown before the recommended dates is injured every year not only by the fly but also by various rusts and other insects and is apt to fall and lodge badly in the field, whereas wheat sown on the same soil but at a later date is nearly all standing at the time of harvest.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. Mumford, *Director*.

## New Pig Disease Common In Different Sections Of The State

Early this summer inquiries were received at the experiment station of the College of Agriculture, University of Illinois from veterinarians and breeders regarding a pig disease which sometimes developed into a partial prolapse of the vagina. In some females the vagina extended for three to six inches. A more careful inquiry regarding this disease among some two hundred practicing veterinarians suggested that vulvovaginitis is somewhat common in different sections of the state. Different breeds, including cross breeds and grades, have been affected. Symptoms have been observed by different veterinarians in pigs from one month to sows three years of age. Females are strikingly susceptible and in very few herds has a comparable disorder in males been observed, yet a similar derangement in males has been observed by some veterinarians.

The cause of this disease has not been established. A number of factors have been suggested, including filth infections, irritant weeds or forage of some type and bad corn, while others have suggested the wet weather as a predisposing factor. Until the cause is definitely established preventive measures cannot be definitely prescribed. Veterinarians are of the opinion that pigs that have suffered from vulvovaginitis should not be kept for breeding purposes.

The most success in the treatment of this disease has been reported by providing clean quarters accompanied by surgical intervention to replace and retain the prolapsed vagina in the early stages. Where the prolapse has endured for several days surgical treatment may not establish a permanent cure. In such cases, it is advisable to keep the affected parts as clean as possible. Animals so affected in good flesh with large prolapses should be salvaged for meat. A variety of local antiseptics have been tried and have apparently given temporary relief. The problem of handling vulvovaginitis cannot be definitely described or outlined until the cause of this disease is established. Observations of different veterinarians who have observed outbreaks are being studied with a view of determining, if possible, the cause or causes of the disease, as well as a practical preventive treatment.-Robert Graham, Chief, Animal Pathology and Hygiene.

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## New Bulletin Gives Results Of Soil Experiments In 1926

Crop yields from Illinois soil experiment fields in 1926 are given in detail in a new bulletin just issued by the Experiment Station of the College of Agriculture, University of Illinois. The station for a number of years has conducted field investigations in all parts of the state to test the effectiveness of various soil treatments on yields of farm crops. The complete results from all these fields up to and including 1924 were reported in Bulletin 273. The results for the major investigations conducted on these fields in 1925 were reported in Bulletin 280. Bulletin 296, the one which has just been issued, is a continuation of this series of publications.

In all these publications the figures are presented as a matter of record, without comment or discussion. In a broad way, of course, the results speak for themselves and carry certain definite lessons to those who have been following the investigations of the station. Discussions of these investigations have appeared from time to time in former station publications, and further discussions of an interpretative nature will appear in future publications.

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## Cheap Membership In Herd Association Pays Out Richly

An inexpensive membership in their county dairy herd improvement associations has been worth $1,000 a year during the past two years to W. W. Holmes & Son, Kankakee county dairymen, by reason of the pointers which they have received in the feeding and handling of their herd for more economical production, according to a report received from the Kankakee county association by the College of Agriculture, University of Illinois, where the work of the 30 active associations now operating in the state is supervised.

Prior to joining the association two years ago, Holmes and his son weighed the milk produced by their herd and at that time the average production was 8,500 pounds of milk a year for each cow. In 1926, when practically the same cows were being kept, but after they had joined the association, the herd average climbed to 10,348 pounds of milk because of increased care, better feeding and more interest on the part of the owners in the herd's welfare. During the association's last fiscal year, just closed, the herd averaged 11,576 pounds of milk. The increased milk production which has amounted to $1,000 a year more during the past two years has been attributed by Mr. Holmes to the utilization of service and suggestions given to members in dairy herd improvement associations.

That Holmes and his son have used the service of the association to good advantage is shown by the fact that they had both the highest producing herd and the highest producing cow during the past fiscal year of the association, the report shows. The Holmes herd averaged 11,576 pounds of milk and 366.2 pounds of fat. Herds owned by Smith and Hatch, E. M. Wright, Calvin Sprager, Don Hendrickson, Emil Weber, and Jewel and Gentry also produced an average of 300 pounds or more of fat during the year.

Holmes' high producing cow was a purebred Holstein that gave 16,127 pounds of milk and 510.8 pounds of fat for the year. The next four highest producing cows were owned by Smith and Hatch and George Wright.

"Credit for the association's successful year must go to George Anderson, the tester for the association, because, due to his activity, all the members fed grain during the summer and relied upon home grown grains plus a protein supplement in order to produce milk with the greatest economy," J. H. Brock, assistant in dairy extension at the agricultural college, said.

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## All-Day Field Meeting To Be Held At Sparta, September 20

An all-day field meeting, featured by the announcement of recent results in soil improvement and addresses on a variety of farm topics, is being planned for September 20 on the soil experiment field which the College of Agriculture, University of Illinois maintains near Sparta in Randolph county, it is announced by officials of the college. Some idea of the pointers that are in store for farmers and their families attending the meeting can be gained from the fact that on the Sparta field the use of limestone to correct soil acidity has paid dividends of about 600 percent. Results of these experiments, in which the best systems of soil maintenance and building are being worked out for that section of the state, will be explained by Dr. F. C. Bauer, chief of soil experiment fields. Other speakers on soils, dairy and poultry will be scheduled for the meeting so that the program will be of interest to all farmers and their families.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X September 7, 1927 Number 36



## Early Oats Are Again Best Yielders In Illinois Field Trials

Early oats this past year again proved superior to the medium late varieties under Illinois conditions. This is shown in results announced by George H. Dungan, assistant chief in crop production, on variety trials conducted at three different points in the state by the College of Agriculture, University of Illinois, for the purpose of finding the best and highest yielding varieties for each of these sections. The tests were run at DeKalb, Urbana and Alhambra.

Yielding a total of 70.2 bushels an acre, Iowa 105 this past season made the highest yield on the DeKalb field. The five varieties that ranked next to Iowa 105, in the order of their yields, were Iowa 103, Iogold, Sixty Day, Wisconsin No. 7 and Iowar. Four of the six leading varieties were developed by the Iowa State College. The highest yielding oat that had been grown at DeKalb up to this year was Iowar. Its rank in 1927 was sixth with a record of 61 bushels an acre. Kanota, which had formerly held second place in average yield, was thirteenth among fourteen varieties in 1927 with a yield of 46.5 bushels an acre.

At Urbana the highest yielding variety was Kanota. It made 74.1 bushels an acre. Kanota has a rank of second among the varieties that have been grown four years or longer. Sixty Day has the highest average at Urbana over a period of years. It was tenth in rank this year with 63.3 bushels an acre. The varieties that exceeded Sixty Day in 1927 in the order of their yields are Kanota, Iowa 103, Wisconsin No. 7, Burt, Gopher, Iowar, Iogren, Iowa 105 and Iogold. These varieties, like the highest yielding ones for the season on the DeKalb field, were all early.

The best oats tested on the Alhambra field this year were Iowar, Burt, Sixty Day and Iowa 103, all early varieties. The average yield of oats on this field for a period of years shows that the varieties rank in the order: Burt, Iowa 103, Iowar, Silvermine, Big Four, and Sixty Day.

Even though they were "mudded in," oats seeded last spring at Alhambra on March 11 made an average yield of 53.9 bushels an acre as compared to 26.2 bushels an acre for seeding the latter part of April.

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## Evening Meeting Scheduled To Precede Soybean Day Program

Plans for the soybean day to be held at the College of Agriculture, University of Illinois September 22 have been extended to include an evening meeting September 21, it is announced by J. C. Hackleman, crops extension specialist in charge of the program. A feature of the meeting will be the showing of the new four-reel motion picture, "Soybean Production in the Orient," which shows in detail the production, handling and marketing of soybeans in their native home. A second feature of the evening meeting will be an address by W. J. Morse, in charge of soybean investigations for the federal department of agriculture, on the subject, "The Soybean As A World Crop."

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Wheat Smut Not Controlled By Sprinkling Method Of Treatment

The 1927 wheat crop in Illinois carried the worst stinking smut infection on record. This causes loss in yield and dockage in price when sold. The remedy is proper seed treatment.

Two conditions determine the severity of stinking smut in any given year: (1) the "spore load" and (2) the weather conditions. By "spore load" is meant the amount of spores on the grain, whether light or heavy. Even though there are few spores on the grain much smut will develop when the weather is favorable for smut. On the other hand, when the spore load is heavy, there is likely to be much smut in the succeeding crop even if the weather is not so favorable for smut. This year, in general, the spore load is heavy. This makes seed treatment very necessary.

Either the formaldehyde immersion method or the dry copper carbonate method is satisfactory. The former requires practically no special equipment, while the latter requires a mixing machine. Anyone handy with tools can make such a machine. Write to the agricultural experiment station for details.

Sprinkling with a formaldehyde solution as for oats will not do. The wheat must be immersed into the solution, stirred well and the smut balls skimmed off. After the grain has dried the formaldehyde is gone and no longer has a protective influence. If the smut balls remain in the grain some of them will break, especially in the drill, and will then reinfect the seed.

By the copper carbonate method every kernel is protected by a layer of copper carbonate dust. Even though the smut balls break in the drill, the spores can not infect the seed.

Microscopic examinations of kernels have shown that if one tries to mix the copper carbonate dust with the grain with a shovel it is extremely difficult to get a thorough coating of every kernel. With a good machine a thorough application can be obtained by turning it two to three minutes. Therefore, a machine should be used, but it should not be filled more than one-third full.

Use two ounces of the dust for each bushel of grain. The grain will take up all this dust and there will be no residue. An excess of dust is hard on the drill.

Do not leave a drill containing copper carbonate treated wheat stand out in damp weather. The treated grain is apt to cake and harden after becoming damp. If the drill is started after that has taken place, something is likely to break.

The extended form of copper carbonate containing 20 per cent of copper is practically as good as the pure product for Illinois conditions, and is considerably cheaper.

There is practically no smut damage from soil infection in Illinois. Only when there is no soaking rain from harvest time until seeding time is there any such danger.-Benjamin Koehler, Crop Pathologist, College of Agriculture, University of Illinois.

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## Adapted Varieties Would Reduce Risks In Wheat Production

Illinois is one of the chief wheat producing states in the union and yet a very large portion of the growers do not know the name of the variety they are growing or whether it is adapted to their conditions. Frequently the crop produced is a lamentable mixture of varieties. In one field inspected this season, approximately 50 per cent of the wheat was of one variety while the other 50 per cent was composed of five or six other varieties.

At this season of the year, the experiment station receives many inquiries concerning sources of seed wheat. Unfortunately, the list of producers of pure seed otherwise of good quality is exceedingly limited. This is partly because of the limited supply of such wheat, particularly of certain varieties, and partly because relatively few farmers care to handle seed wheat. There is a real need for supplies of good seed of a limited number of varieties of wheat adapted to the different sections of the state.

Such varieties as Ilred, Turkey Red and Kanred are recommended for the central and northern sections of the state where hard wheat is commonly grown. These wheats are very hardy and are productive. The straw of these varieties is rather weak and on particularly rich soil the wheat may lodge. If allowed to stand until thoroughly dry for the purpose of harvesting with the combine, these varieties are liable to become rather badly straw-broken. Michikof is probably the best substitute for the above mentioned varieties in case the grower expects to harvest this crop with the combine. Michikof is a smooth, hard, winter-resistant wheat and has a stiff straw. In tests conducted at Urbana and at DeKalb, it has not equalled in yield the varieties of the Turkey Red type.

Tests conducted in southern Illinois indicate that such soft varieties as Fulcaster and the specially selected strains of Fultz known as Trumbull and Fulhio are adapted to that section. Michigan Amber and Gladden are apparently more hardy and tests thus far secured indicate they will prove to be more productive. Other varieties, which have made a good record in tests conducted in the southern section are Mediterranean, Harvest Queen, and Illini Chief.-R. W. Stark, Crop Production, College of Agriculture, University of Illinois.

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## Limestone Pays $19 A Ton Net On Sparta Soil Experiment Field

On the Sparta soil experiment field, where the College of Agriculture, University of Illinois is to hold an all-day field meeting September 20, a ton of limestone applied in a rotation of corn, soybeans, wheat and sweet clover has produced crop increases worth $21.10 a ton. The cost of a ton of limestone delivered to most shipping points in the state is around $2. Thus the net returns from a ton of limestone on the Sparta field not including the labor of application has been more than $19. Untreated land on this field has produced 17.8 bushels of corn as an average for the past four years. In contrast, the average yield where limestone has been applied and a sweet clover green manure crop turned under has been 35 bushels an acre. Thus the corn yield has been doubled. Untreated land made 6.6 bushels of soybeans and 2.8 bushels of wheat an acre as an average for the past four years, while the sweet clover on the sour, untreated land has been a complete failure. On the land where the limestone has been applied and the sweet clover turned under the average yields for the same period of years have been 15.6 bushels of soybeans, 10.4 bushels of wheat and 1.25 bushels of sweet clover seed.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X | September 14, 1927 | Number 37


## Corn Weather Coming Too Late To Check Seed Shortage

Early September's hot, corn-growing weather came too late to right the damage that already had been done to the crop, and with much soft corn in prospect at least 30 per cent of the farmers of the state are face to face with a serious seed corn situation, say crop specialists at the College of Agriculture, University of Illinois. The two available sources of seed - cribs of 1926 corn and early maturing fields of this year's corn - should be combed for every possible ear of seed corn that can be found in them, the specialists recommend.

"While old seed corn is not as good as new corn of like germination, it can be used in emergencies such as are now threatened on many farms. Farmers who do not have any 1926 corn left in their cribs may be able to make arrangements with their neighbors to buy enough carefully selected corn to seed the 1928 acreage. In case weather conditions are unusually favorable and the present crop goes on to maturity, then seed for next year's crop can be selected from it and the seed that was picked from old corn can be used for feed.

"Normally it takes 12 ears of corn to plant an acre, but 25 to 50 ears of 1926 corn should be selected for every acre that is to be planted next spring. This wider margin is needed to allow plenty for culling and germination. Much corn from the 1926 crop germinated poorly and all seed selected from that crop should be germinated carefully during the winter.

"There are a few sections of the state where the weather was more favorable early in the season and good seed corn apparently will be available in those districts. Farmers in those localities can render a distinct service by making preparations immediately for selecting and carefully storing good quantities of seed from these early maturing fields.

"If there is any danger of frost before corn in such fields matures, the seed should be picked in the dent stage. Results of experiments made by the college show that seed picked in the dent stage and carefully stored yields nearly as well as seed picked when mature."

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## Illinois Team Takes Second In National Swine Judging Contest

Illinois got off to a good start in the annual round of collegiate livestock judging contests when the team from the College of Agriculture, University of Illinois captured second place in the swine judging contest held in connection with the National Swine Show at Peoria. Members of the team were Emmett G. Fruin, Gridley; S. V. Caughey, Chatsworth; Kenneth C. Morray, Bloomfield; Melvin C. Hayes, Gridley; Leslie Wright, Bradford. All are juniors or seniors in the college. The team was coached by Dr. W. E. Carroll, chief in swine husbandry, and other members of the animal husbandry department.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. Mumford, *Director*.

## Soybean Day Showing Of New Movie Will Be Its Second

"Soybean Production in the Orient," the four-reel film which will be shown as the feature of the evening meeting which will precede soybean day, September 22, the College of Agriculture, University of Illinois, has been shown only once before, it is announced by those in charge of the program. This first and only showing was made August 16 in connection with the national soybean meeting in North Carolina. The film, which was made by the federal department of agriculture's explorer in China, Manchuria and Japan, shows the production, handling and marketing of soybeans in their native home.

As previously announced, another feature of the evening meeting will be an address by W. J. Morse, of the federal department of agriculture, on the subject, "The Soybean as a World Crop." Morse is in charge of soybean investigations for the department.

One of the striking things that will be brought out in the picture is the fact that farmers in the native home of the soybean use much more hand labor in growing the crop than is the case in this country. When the beans are threshed, for instance, they are flailed out or separated by some other means that is in marked contrast to the modern machine methods used in this country.

In the Orient, and especially in China, the soybean's first use is for human food. Another interesting feature of the film for Illinois farmers therefore will be the utilization of the bean crop in the countries where the picture was made. A variety of human food products, such as milk, cheese, bread, cookies, coffee and salad and cooking oils are made from the soybean by the Chinese. The picture will show the handling of the soybean in commerce from the time it leaves the Chinese farm until it is processed in commercial plants at the seaboard and placed on board ship for shipment.

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## Wheat Seed Needed In Flood Relief Will Tax Supplies

Illinois wheat bins are being scoured for more than 20,000 bushels of seed wheat which the American Red Cross is seeking to buy in this state for use in the Mississippi river flood area where relief is being extended to farmers, it is revealed in a letter which J. C. Hackleman, crops extension specialist of the College of Agriculture, University of Illinois has addressed to county farm advisers in the southern part of the state. A total of approximately 50,000 bushels is being sought in Illinois and Missouri together.

As a protection to the Red Cross and the farmers who are to receive the seed, it is planned to recommend only those supplies which have been inspected and which appear to be seed of good quality relatively free of weeds and diseases, the letter points out. This will tax the wheat seed supplies of the state, for unfortunately wheat growers and most of the farm advisers of southern Illinois have taken little interest in the improvement and certification of seed wheat, which is the important grain in much of that section, Hackleman says.

Farm advisers are being asked to list the names of growers whose fields they have inspected and whose wheat they know to be true to name and relatively pure, the seed sound and of good quality with little or no evidence of diseases and no serious weeds.

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## State Fair Show Of 4-H Boys And Girls Was Record One

Farm boys and girls of Illinois came into their own stronger than ever at the recent Illinois State Fair, according to E. I. Pilchard, boys' club work specialist of the College of Agriculture, University of Illinois. He reports that competition in the junior, or 4-H club, department was keener than in previous years, while in at least two divisions of the department the number of entries made by the youngsters established a new record. There are around 13,000 farm children of the state enrolled this year in the various 4-H farm and home projects sponsored by the agricultural college and close to 500 of the best of these members from approximately 65 counties were at the fair to bid for a share of the $5,806.50 which was offered as prize money in the junior department. In four of the major livestock classes alone there were approximately 500 animals exhibited by the club members, while about 400 garments were shown in the various classes provided for the girls' club members.

Almost a third bigger than last year and more than 13 times as big as it was when it started four years ago, the baby beef show of the club members this year was again the feature of the contests in the junior department. Ninety-two head of baby beeves, fed and developed as the project work of club members in 15 counties, were exhibited in competition for the $1,232 offered in prizes to the young cattlemen. Iroquois, Sangamon, Coles, Macon, Macoupin, Douglas and Cass counties scored heaviest in the show. A Coles county beef calf club member, John Gaiser, Charleston, carried off individual honors when his Hereford steer was made grand champion over the 91 others.

Louise Anderson, a 13-year-old 4-H club member from Livingston, carried off one of the major honors in the girls' classes by winning first place in the style show. Dresses in which the style show contestants modelled were made by them and ranged in price from 40 cents for a house dress to $11.50 for an afternoon or party dress. Wilma Mittelberg, Fowler, Adams county, won the girls' health contest.

The pig show staged by the boys' club members was one of the two events in which a record number of entries were made. Two hundred eighty-four head from 18 counties were shown in competition for the $1,360 in prizes. In all, 14 major classes were provided for the boys' and girls' club members in the junior department, thus giving members in all types of 4-H clubs a chance to show the results of their year's work and get a share of the prize money.

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## Corn Borer Is Just Another Insect To Polish Farmer

While the corn borer at present is causing Illinois farmers more concern than any other pest, it is just another insect to the farmers of Poland, according to Dr. S. P. Minkiewicz, of the department of Entomology in the government institute of agricultural research, Pulawy, Poland, who inspected the work of certain departments in the College of Agriculture, University of Illinois, in connection with an extended tour which he is making through this country. Despite the fact that the dreaded borer is native to Poland, there are no large outbreaks of the pest in that country, the insect being kept in check by natural conditions, cultural practices and parasites, according to Dr. Minkiewicz. There are no extensive acreages of corn in that country and the farmers are peasants who plow their land just after harvest, thus cleaning up crop refuse and destroying harbors that might be used by the borer, the Polish entomologist explained.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X September 21, 1927 Number 38

## Trip Builds Confidence That Illinois Can Conquer Borer

Increased confidence that farmers of Illinois will be able to cope with the dreaded corn borer and continue to grow corn successfully if they will adopt the proper methods of fighting the pest when it becomes established in this state was gained by members of the agronomy advisory committee of the College of Agriculture, University of Illinois during a three-day inspection trip made through the corn borer area of the United States, according to reports brought back by those who participated. After reviewing the corn borer situation and the control work in other states, members of the committee were agreed that in general the Illinois fight against the pest is being waged along sound lines.

Throughout the trip it was generally impossible to detect the presence of the borers in the infested fields, except by inspection of the stalks, according to reports brought back by those making the trip.

Corn borer control headquarters at Toledo, Ohio was the first stop on the trip, members of the party looking over the machinery that was used in the spring cleanup campaign and later examining certain of the fields where some of the new low cutting machinery and field shredders have been in use.

D. J. Caffrey, in charge of corn borer research work for the federal department of agriculture, then conducted the party to the Monroe, Michigan laboratory of the bureau of entomology where nearly 2,000,000 foreign corn borer parasites have been reared and later liberated in infested fields in the United States. The party then went three miles west of Monroe to the plots where the Michigan Agricultural Experiment Station is carrying on its agronomic and entomological investigations in corn borer control.

The most estensive corn borer plots in the United States were visited during the forenoon of the following day. These are the plots of the Ohio State Experiment Station near Bono. The Ohio corn borer laboratory at Oak Harbor and what is, so far as is known, the most heavily infested field in Ohio, were visited during the afternoon.

The Ohio Experiment Station at Wooster was visited the following day before the party started home.

Members of the advisory committee who made the trip included Eugene Funk, Bloomington; William Webb, Joliet; Frank I. Mann, Gilman; G. F. Tullock, Rockford; O. J. Sommer, Pekin; Harvey Sconce, Sidell; W. E. Riegal, Tolono; and N. F. Goodwin, Palestine. Members of the college agronomy department who accompanied the committee members were Dr. W. L. Burlison, head of the department, F. C. Bauer, R. S. Smith and C. M. Woodworth. The party was led by W. P. Flint, chief entomologist of the Illinois nois Natural History Survey.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. Mumford, Director.

## Illinois' 1928 Better Farming Program Based On 49 Problems

Forty-nine of the major farm problems of Illinois have tentatively been selected as those to be stressed during the coming year in the state agricultural extension program carried out cooperatively between the College of Agriculture, University of Illinois, the 95 county farm advisers and the various county farm bureaus of the state, it is announced by H. W. Mumford, dean of the college and director of extension. The scope of the problems ranges from corn borer control to community organization and development.

Definite projects on each of the 49 farm problems included in the program have been prepared by the various extension specialists of the agricultural college. In four district conferences scheduled for October, the 95 county farm advisers of the state will discuss these projects and make the final selection of the ones which should be stressed in their respective counties during the coming year. Dates for the district conferences are: Peoria, October 18 and 19; Chicago, October 20 and 21; Centralia, October 25 and 26, and Decatur, October 27 and 28.

Under this system of drawing up a state program of agricultural extension projects a year in advance, farm advisers can plan their work for months ahead, thus speeding up the farm improvement movement throughout the state, officials of the extension service pointed out. An added advantage of this plan is the fact that special campaigns, demonstration trains and similar activities necessitating hasty and unsatisfactory preparation is avoided.

The list of projects mapped out for the coming year includes those on community organization and development, storing and marketing of grain and other farm products, more and better legumes, better seed corn, seed exchanges, soil testing and mapping; limestone, phosphate and potash demonstrations; sweet clover, horse and mule pulling contests and tandem hitch demonstrations, balancing corn for hogs, legumes and other roughage for beef production, cattle sanitation and breeding hygiene, poultry flock management, poultry sanitation, poultry breeding, dairy herd improvement, cooperative bull associations, Illinois 500-Pound Butterfat Cow Club, dairy cattle feeding schools, soil erosion, home equipment, farm machinery and farm motors, farm buildings, simple farm accounts, farm organization, farm management schools, home vegetable gardens, disease resistant vegetables, commercial gardening, orchard soil management; pruning fruit trees, grapes and bramble fruits; thinning fruits, control of rodents and other animal pests, chinch bug control, schools on insect control, European corn borer, Hessian fly, woodlot management, marketing of woodland products, schools for poultry project leaders, farm accounts in the public schools, county extension programs of work, and seven projects on boys' club work.

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## Seven Cows Establish Claims To Membership In Select Club

Seven cows, including a world's record animal, already have won memberships and the accompanying gold medal in the Illinois 500 Pound Butterfat Cow club and with four months of the allotted year remaining, a score or more of "bossies" are conceded an excellent chance to qualify for the honors of the club, it is announced by C. S. Rhode, dairy extension specialist, College of Agriculture, University of Illinois, who has charge. To get into the select circle, cows which have been entered in the race must produce 500 or more pounds of butterfat by the end of the present year, the idea being to give these high producers due recognition and demonstrate to farmers and dairymen that good breeding, proper feeding and the right kind of care and management pave the way to economical milk yields. The club is now in its third year. Owners of the seven cows that have met the requirements of the club, together with records of the animals, are: W. T. Rawleigh, Freeport, 624.4 pounds of fat; John R. Logan & Son, Seward, 626.1 pounds; V. Rice Brothers, Dallas City, 547 pounds; Arthur D. Cornue, Hebron, 519. pounds; H. W. Bischoff & Sons, Lockport, 511.3 pounds; H. N. Fox, Palestine, 508.1 pounds, and Harry Flack, Stockton, 501.9 pounds.

## Method Of Filling Silo Depends Largely Upon Labor Question

The total cost of making silage is about the same, but the amount of labor varies considerably with the different methods of putting up silage that are practiced in various localities of the state, says R. C. Ross, farm organization and management, College of Agriculture, University of Illinois.

"The most common method consists of cutting the corn with a binder and hauling the bundles to the machine where the corn is cut and blown into the silo. A second method differs only in that the corn is cut by hand. A third method uses a machine which harvests the corn and cuts it up in the field, the cut silage being delivered to a wagon rack ready to be hauled to the silo and elevated.

"In studies made where the binder and ordinary silage cutter were used the man labor required was 1.45 hours for a ton of silage and the horse labor 1.95 hours. At 25 cents an hour for man labor and 15 cents for horse labor these items cost 36 and 29 cents, respectively, a ton. Cutter and power costs were 33 cents, twine 5 cents, fuel and oil 6 cents, binder 7 cents and miscellaneous equipment 4 cents, making a total of $1.20 a ton for these items. To this must be added 15 cents a ton for the stover and the value of 5.5 bushels of corn at farm prices, which will depend this year on the corn's chances to mature. At 50 cents a bushel for corn, the total cost of silage under this method would be $4.10 a ton and this would increase approximately 55 cents a ton for each increase of 10 cents in the value of a bushel of corn.

"If the corn is cut by hand, the twine and binder costs are saved and the amount of horse labor is reduced. However, these savings are about offset by the increased amount of man labor required.

"With the machines which cut up the silage in the field, the man and horse labor is still further reduced and there is no cost for twine. The machinery costs are higher, so that the total cost is practically the same as with the other methods. This method has the advantage that the heavy work is largely performed by machinery and there is little difficulty in getting help to fill the silo."

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## "Zero Hour" Is At Hand For Gas War On Peach Tree Borers

Between September 20 and October 20 is the "zero hour" for the annual gas attack upon the peach tree borer, one of the most serious insect pests with which orchardists in this state have to contend, S. D. Chandler, assistant entomologist of the Illinois State Natural History Survey, has advised horticulturists of the College of Agriculture, University of Illinois. If paradichlorobenzene, or P.D.B., the chemical which gives off the deadly gas, is applied too early in the season, some of the late borers may escape. On the other hand, if the attack is delayed too long, many of the insects may not be killed because the soil will then be too cold and the P.D.B. crystals will not readily change to gas, it was explained.

"A careful study of the habits of the peach borer in southern Illinois and of the time when they are laying their eggs has shown that from 10 per cent to as many as 60 per cent, in some years, of the moths emerge after September 1. The eggs which they lay hatch in the two weeks following. Taking all of our notes together for southern Illinois, it is evident that if growers are to treat at a time when approximately all of the borers may be gassed it should be done between September 20 and October 20."

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X | September 28, 1927 | Number 39


## Costs $164 A Year To Keep Dairy Cow In Northern Illinois

It cost an average of $164.72 to keep a cow a year and $2.08 to produce 100 pounds of milk on 37 farms in DuPage, Cook and McHenry counties where dairymen are cooperating with the College of Agriculture, University of Illinois, in keeping dairy cost records, according to H. C. M. Case, in charge of farm organization and management. These 37 dairymen, who were owners of 733 cows, were members of their respective county dairy herd improvement associations and consequently the production of their cows was higher than that of cows on the average farm. Accordingly, the cost of producing milk on these farms was lower than it would be on the average farm.

More than half, or 51 per cent, of the cost of keeping a cow on these farms went for feed, according to the records. Twenty-two per cent of the cost was for man labor and 11 per cent for depreciation. The remaining 16 per cent was for interest on investment in cows, use of buildings and equipment, veterinary and medicine, association dues and a share of the general farm expense.

In producing 100 pounds of milk at a cost of $2.08, the 733 cows averaged 7,889 pounds of milk each. The cost for 100 pounds of milk varied from $1.56 on one farm up to $3.18 on another, even tho these herds were better than the average fall herds. Many things can happen to cause this difference, but the three most common causes were poor feeding practices, high depreciation due to diseases and high labor charge.

Records similar to those on the 37 farms are being kept this year on more than 200 dairy farms, according to the college farm organization and management department. Owners of these farms are members of 16 dairy herd improvement associations and live in 14 different counties of the state, located mostly in northern Illinois in the dairy sections around Chicago, LaSalle, Dixon and Peoria. These records will show the individual farmer the results on his entire farm and, in addition, detailed information on the cost of producing dairy products. Besides having his own record, the dairyman can compare his farm with other farms in the same section and see at what points he can improve his own farm operation which is the main object of the work.

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## Soybean And Corn Day Draws Interested Crowd Of 500

Soybean and corn day, observed September 22 at the College of Agriculture, University of Illinois, brought out a crowd of approximately 500 farmers and soybean growers, thereby making the event one of the most successful of those recently held at the institution. Assurance that there is no immediate danger of overproduction of soybeans, results from soybean variety trials, reports on breeding experiments looking to the development of new varieties and moving pictures of soybean production in Manchuria, the native home of the crop, were among the high lights of the meeting.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8 1914. H. W. Mumford, *Director.*

## Herd Records Would Have Saved Fine Sire For Dairyman

How a valuable purebred Guernsey bull was lost to his owner and to the breed, because his true worth from the production standpoint was not discovered until after he had been sold for beef, was one of the lessons pointed out to members of the Crawford-Lawrence Dairy Herd Improvement Association during the recent tour and picnic of 18 members, it is reported by J. H. Brock, dairy extension specialist of the College of Agriculture, University of Illinois, who spoke in connection with the event.

The bull, Majesty of Linwood, was bought in 1916 by R. C. Lindley, the dairyman whose herd was visited second on the tour. Lindley is now a member of the association, but at the time he bought Majesty of Linwood he had not yet come into the organization. Consequently, there was no way to check up on the production records of the bull's daughters and measure his worth as a breeding animal. Unfortunately, therefore, he was sold for beef after he had been used but a short time in the herd.

Later it was discovered that the daughters of Majesty of Linwood averaged more than 300 pounds of fat, a highly creditable record. Last year the bull's four remaining daughters in the herd averaged 396 pounds of fat. Herd improvement association work had been taken up too late as far as Majesty of Linwood was concerned, but Lindley did the next best thing and went back to the same herd and bought Sequels Pilot. The first four daughters from this second bull have only been milking for an average of four months and have produced 44 pounds of fat a month in their first lactation.

On the adjoining farm of C. E. Rains, where the third stop of the tour was made, three more daughters of Majesty of Linwood were seen. One of them, Sassy, a very excellent individual, produced 10,941 pounds of milk and 629 pounds of fat, the highest record at that time for any grade cow in all of the Illinois dairy herd improvement associations. She also was seventh highest in production among all purebreds and grades.

The first stop of the tour was made at the farm of a Dr. Ridway whose herd of Jerseys was the first one in Crawford county to average 50 pounds of fat in one month. Intelligent feeding for the previous six months was responsible. In the morning before the tour started, short talks were made to members of the party by Brock and by E. E. Pifer and H. N. Fox, both members of the association. These two dairymen emphasized the importance of getting into a herd improvement association and staying there to get the cumulative benefits of membership.

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## "Bread Line" System Of Feeding Cuts Egg Production

Standing in line for their feed is objectionable to hens and furthermore, they will not do their best when forced to do this, says H. H. Alp, poultry extension specialist of the College of Agriculture, University of Illinois. Hence the value of a good egg mash often is limited by the hopper in which it is fed, he said. Feeding space for all hens at all times is the rule that should be kept in mind in building a poultry feed hopper, he recommended. There should be at least two feet of hopper space for every ten birds.

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## Old-Fashioned Cleaning Still Good For Modern Hen Houses

Farm poultry houses may be more modern now than they were in years past, but they still need an old-fashioned house cleaning at this time of the year, says H. H. Alp, poultry extension specialist of the College of Agriculture, University of Illinois. "Old-fashioned" is the correct descriptive term, for nothing less than a day should be taken for the job, he said.

"There is little use to raise healthy pullets without having decent quarters in which to house them. In fact, satisfactory quarters are absolutely essential. A freshly cleaned and whitewashed hen house is a good start.

"The cleanup should consist of removing nests, roosts, hoppers, drinking stands and all other equipment from the house. Each should get a thorough scrubbing with water and some good disinfectant. The house itself should be swept, ceilings, walls and floor. The floor should be well scraped clean of all hard, dried litter and droppings. Dirt floors should have at least six inches of the old dirt taken off and replaced with six inches of clean dirt.

"The final cleanup step should be a thorough spraying of the inside of the house with some good disinfectant. Whitewash helps to brighten a dark house and a freshly whitewashed house has a tendency to encourage its owner to keep it looking clean for some time to come.

"Just because there are plenty of pullets to put into the cleaned house is no reason for overcrowding the quarters to take care of them. Better results would be obtained by selling the surplus and taking care of the rest properly. Overcrowding is likely to lead to dampness and this often leads to fall colds and roup.

"The number of birds to keep in the house can be determined by multiplying the width of the house (in feet) by the length and dividing by four. Observations made throughout the state would indicate that fewer and better birds should be kept and looked after properly."

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## Spring Labor Problems Lightened By Fall Cleanup Of Garden

Farm labor problems of the spring can be partially met in the fall by preventing weeds from going to seed in the garden, the one place on the farm where weeds are not wanted, it is pointed out by B. L. Weaver, of the horticulture department, College of Agriculture, University of Illinois.

"Every weed that goes to seed in the garden this fall will mean more work next spring, because a single weed may produce thousands of seeds for the following season. Weed seeds will germinate and thrive under conditions unfavorable to most vegetables and often will come up before the garden seeds have been planted. The job of hand weeding which is necessary under these conditions takes a lot of time.

"That portion of the garden from which the crops are harvested comparatively early and on which no other plantings are to be made during the season should be cultivated and seeded to some cover crop. Hairy vetch or rye may be used. The vetch, a legume, is preferable but the rye may be sown later in the season. A cover crop not only keeps down the weeds, but also prevents available plant food from leaching away, keeps the ground from washing if the garden is on a slope and, when turned under, adds organic matter to the soil."

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X October 5, 1927 Number 40


## New National Record Believed Set By Station Report

As a result of what is believed to be a new national speed record in getting out the results of experiment station research and investigation, Illinois farmers are receiving the current annual report of H. W. Mumford, director of the experiment station, College of Agriculture, University of Illinois, only three months after the close of the fiscal year covered by the report. It includes the fortieth year in the station' history. Giving up-to-date results on 215 distinct investigations carried on during the past year at the experiment station, the report takes the form of a 288-page booklet entitled, "A Year's Progress in Solving Farm Problems of Illinois." It is for the year ended June 30 and was compiled and edited by F. J. Keilholz, editor in the agricultural college and experiment station, from reports submitted to the director by members of the staff.

In the past, farmers have directed much criticism at the agricultural experiment stations of the country because annual reports and other formal statements of research and investigations have been issued a year or two, or even longer, after the experiments were concluded. In changing the style of its annual report four years ago, therefore, the Illinois station started a movement to get out the publication promptly after the close of the fiscal year for which it was issued. So far as can be determined, no experiment station in any of the other states has ever issued an annual report so promptly after the close of the year as is the case with the latest Illinois report.

Director Mumford, prefacing the fortieth annual report, says, "Forty years have broadened the scope and multiplied the results of the experiment station's work a hundredfold. But two investigations had been finished and were reported on in the first report, which was for the year ended June 30, 1888. This, the fortieth report of the station, gives results on 215 distinct investigations. As the scope and results of the station's work have broadened, so has its place in the agriculture of the state become more deeply rooted."

It is pointed out that marketing facts of more volume and significance have been worked out during the past year's work of the station than in any previous year. Thus, one of the striking contrasts between the first report and the current one is in connection with marketing, for the early investigations of the station naturally started with more efficient production, it is explained.

"During the past year, for instance, reports from 434 cooperative livestock shipping associations were made the basis of a far-reaching study of livestock marketing. Fruit and vegetable marketing projects of the station contributed their full share toward securing wider distribution on Illinois' record peach crop of 1926 than had perhaps ever been secured on a peach crop from this state. Similarly, facts of significance and importance were worked out in milk marketing studies. To mention only one of these facts briefly, it was found that experienced milk dealers, using large outlays of capital and highly efficient methods, generally must be satisfied with a profit of less than one-half cent a quart of milk."




Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## General Infestation Of Borer Is Still 50 Miles Away

Held back by the successful $10,000,000 cleanup campaign waged during the past spring in the five infested states, general infestations of the European corn borer are still 50 or 55 miles from Illinois' eastern boundary line, while future spread of the dreaded insect into this state and the corn belt proper will be further retarded if proposed control measures are carried out, according to a report to the College of Agriculture, University of Illinois by W. P. Flint, chief entomologist of the state natural history survey. He has just returned from a general conference of state, federal and Canadian corn borer officials and a meeting of the international corn borer committee in Toledo, O.

Effectiveness of the cleanup this spring was greater than officials had dared hope for, according to reports made at the Toledo sessions. Counts just made in all but 75 of the 818 townships in the campaign areas of Indiana, Ohio, Michigan, New York and Pennsylvania showed that the borer population in these infested states had increased but 50 per cent this year, whereas the increase last year, when there was no cleanup, was 400 per cent, or eight times as great as it was this year, it was reported. Scouts' reports available at the time of the meeting showed that the western border of the borer infested area was in Marshall and St. Joseph counties, Indiana, the western edges of which are 50 or 55 miles from the Illinois line.

Efforts to develop farm machinery to aid in the mechanical cleanup of the borer during campaigns similar to the one of this past spring will be pushed vigorously, if recommendations made at the meeting by committees of entomologists, agronomists and agricultural engineers are followed. Dr. W. L. Burlison, head of the agronomy department of the U. of I. College of Agriculture, is a member of the agronomy committee, and E. W. Lehmann, head of the college farm mechanics department, a member of the agricultural engineering committee.

It also was recommended that the cleanup campaign be continued this coming spring, with certain modifications which will permit the cleanup operations to fit in better with ordinary farm practice in the infested areas. Additional funds will have to be appropriated for this, as the campaign of the past spring used up the $10,000,000. The program mapped out by the committees further recommends the continuation of experimental work with corn varieties, dates of planting, insecticides, corn borer repellants and fertilizers. It also was advocated that the control and scouting work be continued and that the development of corn borer parasites be pushed. It was suggested, however, that the parasitic work be extended only after a careful study had been made of the biology of the imported parasites, both in this country and in Europe, as a protection against parasites that might prove to be harmful.

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## New Poison, Red Squill, Effective Weapon Against Rats

Comparatively new and relatively harmless to all animals except rats, a poison by the name of red squill is one of the aids that can be used at this opportune time of the year to rout rats, it is suggested by G. C. Oderkirk, of the federal biological survey, who is cooperating with the College of Agriculture, University of Illinois and the state natural history survey in rodent control. A revised bulletin on rat control embracing new methods recommended by the federal department of agriculture, is available to farmers and other interested persons through the state natural history survey here at Urbana, or through county farm advisers.

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## Farm Youngsters Leading Way In Better Beef Movement

Farm boys and girls, through their 4-H baby beef calf club work, are leading the way in the present national movement for the production of tastier beef, says C. E. Gates, associate in boys' club work at the College of Agriculture, University of Illinois. By buying choice feeder calves and giving them a full feed of grain for a period of eight or nine months, these club members are demonstrating that prime beef can be produced at a profit, he said. As proof, he cites the case of the baby beef calf club of Douglas county whose members have just sold 134 head of fat baby beeves weighing a total of 115,380 pounds for a total of $18,076.58, an increase of $12,734 over what the youngsters paid for the calves laid down in Arcola last December. There was enough prime beef in the consignment when it was sold through one of the regular calf club auctions staged by the International Livestock Exposition to serve 126,918 banquet meals, Gates calculated.

Without exception, every one of the club members made a profit on his feeding operations, according to Gates. Largest of its kind in the state, the Douglas county calf club this year had an enrollment of 120 members. One hundred sixty-three Hereford feeder calves were bought and fed out by these members under direction of Farm Adviser F. W. Garrett and the vocational agriculture teachers of the county who acted as local club leaders.

When taken out by the club members, the calves weighed an average of 373 pounds and cost $10.69 a hundred pounds, including all shipping and handling expenses. The 134 calves that were sold in the recent consignment were those that had been shown at the Douglas county fair. The rest of the calves are in a club at Atwood, on the far side of the county. They will be shown in a fall festival at that place and then marketed from there. When sold in Chicago, the 134 calves weighed an average of 861 pounds and sold for an average of $15.67 a hundred pounds. The total amount of beef put on the calves by the club members during the feeding period therefore amounted to 65,398 pounds. On the day that the calves sold, the top price for steers on the open market was $16.10 a hundred. Some idea of the quality of the club members' calves can be gained from the fact that 64 of them brought more than this top price. The top calf in the Douglas county consignment was fed by John Wilson, Arcola, and was bought by Morris & Company for a New York City hotel at a price of $17.25 a hundred pounds. He weighed 1,020 pounds.

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## All Farms Could Have Electricity Within A Few Years

Electrification of all farms of the country, a feat which would have both economic and social value for the farmer but which seems overwhelmingly impossible on its face, could be accomplished within five or six years if each farm set aside, for that period of time, an amount equal to the annual cost of operating the cheapest car, it is calculated by Prof. E. W. Lehmann, head of the farm mechanics department, College of Agriculture, University of Illinois. Farms of the country could be electrified within 10 years if each farm set aside, for that number of years, an amount equal to the annual cost of keeping one horse, he said.

Human energy must be valued at a frightfully low figure to compete with the electric motor in the performance of farm chores and work, Prof. Lehmann pointed out in showing the practical aspects of rural electrification. From tests made by the Illinois college on rural electrification, when electrical energy was valued at 10 cents a kilowatt hour, it was found that 5 cents worth would wash 33 pounds of clothes, separate 1,000 pounds of milk or draw 250 gallons of water.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X October 12, 1927 Number 41


## Bankers To Brush Up On Farm Topics In November Short Course

Growing interest being taken by business men in farming and its problems will bring Illinois bankers here for a two-day agricultural short course at the College of Agriculture, University of Illinois, November 9 and 10, it is announced by the College. Arranged at the request of the Illinois Bankers' Association, the program will cover the present farm business situation, earnings of Illinois farmers, dairy herd improvement movements in the state, soil fertility and land values, use of livestock for soft corn utilization, fruit and vegetable marketing problems, grain harvesting methods, the present seed corn situation, cooperation between bankers and agricultural extension agencies and methods used by the agricultural college in getting new facts and information to farmers of the state. Similar short courses have been held at the college in several years previous.

W. M. Givler, Naperville, chairman of the agricultural relations committee of the Illinois Bankers' Association, will open the formal program of the short course at 1:30 o'clock on the afternoon of November 9 by outlining the purpose of the course. H. C. M. Case, in charge of the farm organization and management department, will follow to analyze the present farm business situation, and R. R. Hudelson, extension specialist in the department, will report the present earnings of Illinois farmers.

Dairy herd improvement work in Illinois will be discussed by H. A. Ruehe, head of the college dairy department, and C. S. Rhode, dairy extension specialist in that department, after which F. C. Bauer, chief in soils extension work, will discuss soil fertility and land values.

H. W. Mumford, dean of the agricultural college and director of the experiment station, will close the afternoon program by telling the bankers just how the institution gets new facts and information to farmers of the state.

The threatened soft corn crop will come in for first attention on the morning program for November 10. H. P. Rusk, head of the animal husbandry department will open the discussions at 9 o'clock by explaining how livestock can be used to solve the soft corn problem. Fruit and vegetable marketing problems will be discussed by J. W. Lloyd, in charge of this work; investigational results in the use of combined harvester-threshers will be reported by E. W. Lehmann, head of the farm mechanics department, and the importance of making preparation for seed corn needs will be stressed by W. L. Burlison, head of the agronomy department. W. W. McLaughlin, farm adviser of La Salle county, will close the program of talks by discussing the topic, "Cooperation of Bankers in Carrying out an Extension Program in a County."

Following the close of the formal program, the bankers will be taken on a tour of the 1,000-acre farm of the college during which there will be inspections and demonstrations in the feed lots, orchards, flocks, herds and experiment fields.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Says Scanty Feeding Of Cows At This Season Is "Worst Mistake"

Out of 30 years' observations, W. J. Fraser, professor of dairy farming at the College of Agriculture, University of Illinois, selects as the greatest single mistake being made by Illinois dairymen their failure to feed their cows enough during much of the summer and fall. He just returned from the dairy section of northern Illinois where he spent a month visiting dairy farmers and studying conditions on their farms. This underfeeding leads to one of the greatest reductions in profits on dairy farms, because of the loss in milk production and the stunted growth of heifers, he pointed out. Chief blame for underfeeding of dairy cows during late summer and fall is laid to dairymen's pastures, most of which are grass which is shallow rooted and therefore stops growing at the first indication of a drouth, Prof. Fraser explained.

"The cheapest and easiest remedy for this tremendous lack of feed is an abundant supply of sweet clover pasture. This crop roots so deeply that it is not easily affected by drouth. Even with good sweet clover pasture, the dairyman with more than ten or twelve cows should have a summer silo from which silage could be fed whenever the pasture did not furnish an abundance of feed. In addition, it often is wise to give the cows some hay, while grain should be fed to all cows producing more than 20 pounds of milk a day, the rate of grain feeding to be determined by the production of the cow.

"It has been my invariable experience to find cows thinner when they go into the barn in the fall than when they are turned out to pasture in the spring. One would think that during the growing season when cows could harvest their feed themselves they certainly would be fed better and more liberally than in the bleak, cold winter when the feed they get has to be raised, harvested, prepared, stored and fed to them in a manger, certainly at far greater expense of storage and labor.

"Good feed during May and June is furnished by ordinary grass pasture, it is true, but there is practically always a shortage of feed after the first of July and some seasons this shortage is so great that for eight to fifteen weeks cows get little or no feed from the pasture. Yet many dairymen still depend almost entirely upon grass pasture for roughage during the summer months.

"The consequence is that many cows run down in flesh, many of them losing from 100 to 200 pounds, and those that freshen in thin condition in the fall require two to three months of heavy barn feeding before they are again in high enough flesh to do good work as milk producers. What is more serious is the fact that the heaviest milkers, which are the most profitable cows, cannot be gotten in good flesh even with heavy feeding, until spring. This, of course, greatly lessens the cow's milk flow just at the time of her highest production, which is the time she makes her big profit of the year."

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## Egg Yields Not Cut By Cleaner Method Of Feeding Hens Grain

Box-feeding of scratch grain for laying hens can be substituted for the old unsanitary method of feeding the grain in the straw litter without affecting egg yields to any marked extent, according to the results of investigations conducted at the experiment station of the College of Agriculture, University of Illinois, and reported in the recent fortieth annual report of the station. Feeding of scratch grain in straw litter has for a long time been recommended as a practice with laying hens, chiefly because it induces exercise on the part of the birds. From the standpoint of sanitation, however, this method of feeding cannot be advocated, in view of the fact that the litter is practically always soiled and contaminated.

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## Cheaper Cuts Of Pork Give Housewives Most For Their Money

Housewives will get far more for their money in the way of lean meat and total edible meat by phoning the corner butcher for such pork cuts as neck bones, sausage, spare ribs, bostons and picnics than they will by ordering the more popular cuts like ham, loin, pork chops and bacon, according to tests made by Sleeter Bull and J. H. Longwell, of the experiment station, College of Agriculture, University of Illinois, to determine the economy of different cuts of pork. Results of the tests, in which 161 butcher hogs were fed to weights of 225 pounds, slaughtered and the cuts divided into lean, fat, skin and bone, are reported in the recent fortieth annual report of the station. The greater economy claimed for neck bones, sausage, spare ribs, boston and picnics over ham, loin and bacon is on the basis of relative prices of: neck bones 10 cents, loin 40 cents, boston 30 cents, picnic 25 cents, spare ribs 20 cents, ham 40 cents, sausage 25 cents and bacon 50 cents.

In determining the lean, fat, skin and bone in the various cuts it was found that boston, a cheap cut, was highest in lean, containing 84 per cent. Sausage contained 75 per cent lean meat, loin 66 per cent, ham 62 per cent, picnic 61 per cent, spare ribs 60 per cent, bacon 45 per cent, neck bones 36 per cent and fat back and clear plate none.

Fat back and clear plate contained about 90 per cent fat, bacon 50 per cent, sausage 25 per cent, ham 24 per cent, picnic 21 per cent, loin 15 per cent, boston 11 per cent and spare ribs and neck bones none.

Fat back and clear plate had 10 per cent of skin, bacon 6 per cent, picnic 4 per cent, ham 3 per cent and the other cuts none.

Neck bones contained 64 per cent bone, spare ribs 41 per cent, loin 18 per cent, picnic 14 per cent, ham 10 per cent, boston 5 per cent and the other cuts none.

In connection with this investigation, the fortieth annual report of the station gives two scales, one for calculating the cost of a pound of lean meat in different cuts at different prices and the other for calculating the cost of a pound of edible meat, lean and fat, in different cuts at different prices.

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## Neighborly Visits Help Henry County Dairymen Solve Problems

Pasture shortage, one of the common problems of farmers and dairymen during the late summer and early fall, is no longer a worry to L. L. Angevine, a Henry county dairyman whose place was visited during the recent tour staged for members of the Henry County Dairy Herd Improvement Association through cooperation of the extension service, College of Agriculture, University of Illinois. At the time of the tour, Angevine stated that since July 18 he had been pasturing 31 head of cattle and 30 hogs on a 20-acre field of Sudan grass. Sown at the rate of 20 pounds of seed to the acre, the grass made a luxuriant pasture which was available about 40 days later.

Another of the interesting things seen at the Angevine farm was a satisfactory and sanitary dairy barn that had been remodeled from a lean-to-shed type of barn. The approved practice of keeping the herd sire in a safe bull pen also was in use in this herd of high grade Guernseys. A $25-idea worked out by Angevine for getting hot water in his milk house also came in for attention. He simply connected a large barrel with a common stove. The milk house in which this simple hot water system was located was arranged so that it could be easily adapted to a great number of uses.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X | October 19, 1927 | Number 42


## Special Legume Train To Be Run In Cooperation With Wabash

Featuring two of the several legumes which are being groomed as telling weapons for use in the impending Illinois war on the European corn borer, an alfalfa - sweet clover special demonstration train will be operated across central Illinois during the week of November 7 to 12 through cooperation of the Wabash railroad and the College of Agriculture, University of Illinois, it was announced today by officials of the institution. Fifteen towns, including Homer, Cerro Gordo, Gibson City, Monticello, Lovington, Windsor, Altamont, Illiopolis, Springfield, New Berlin, Chapin, Pittsfield, Mount Sterling, Clayton, Bowen and Carthage, have been selected as stops for the train.

These towns dot a section in which more corn is grown now than will be the case after the corn borer strikes, and accordingly the time is ripe for aiding farmers in adjusting their cropping systems and for doing everything possible to bring about the long-needed increase in the legume acreage of the state, it was pointed out. At the present time only 1 acre in about every 15 is growing legumes, whereas the ratio should be 1 acre in about every 5 or 6.

Five talks are scheduled for each stop on the itinerary of the train in order that farmers may get all sides of the legume question. College specialists in soils, crops, animal husbandry, dairying and insect control will show the relation of legumes to these various subjects. In addition, exhibits prepared by the agricultural college and giving the results of a wide variety of experiments with legumes will be housed in two exhibit cars. These displays will deal with the production and utilization of legumes, the use of limestone and inoculation as aids in growing successful crops of legumes, the value of sweet clover and alfalfa for pasture and other forms of feed, and varieties, grades and uses of soybeans.

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## Alfalfa's Superiority Over Clover Seen On Soil Test Plots

On the Davenport soil plots of the College of Agriculture, University of Illinois at Urbana where a five-year rotation of corn, oats, clover, wheat and alfalfa has been grown for 16 years, clover has failed six times while alfalfa failed but once and even then the crop was destroyed by insects, according to F. W. Gault of the Agronomy department. Where limestone and manure had previously been supplied, the average yields of hay during the period were 2.6 tons of clover and 3.2 tons of alfalfa. With the addition of rock phosphate, the yields were 3.1 tons of clover and 4.2 tons of alfalfa. At Joliet, in a six-year rotation of corn, corn, oats, clover, wheat and alfalfa, the alfalfa yields have been nearly double that of clover. On the Dixon field, one rotation containing clover and another containing alfalfa are grown on soil of suc character that the results are fairly comparable. As a six-year average on the untreated land, the yield of clover was 1.6 tons and that of alfalfa 3.7 tons an acre. At Mount Morris, in somewhat similar rotations, the yields for clover and alfalfa were 1.7 tons and 3.2 tons, respectively. At present, these soils will grow alfalfa withou the addition of limestone, but nevertheless liming increased the yields slightly on both fields.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. Mumford, *Director*.

## U. of I. Accounts Being Kept By 1.800 Farmers In 85 Counties

Alert to the need of accounting in their increasingly commercial type of farming, 1,800 Illinois farmers in about 85 counties of the state are keeping accounts on their business in cooperation with the College of Agriculture, University of Illinois and their county farm advisers, it is reported by R. R. Hudelson, extension specialist in farm organization and management.

Every one of these farms has been visited by a member of the farm organization and management department during the past summer, thus enabling the individual farm operators to put their heads together on farm management problems, Hudelson points out. Also, such visits make it possible to draw on the results of past farm accounting studies in solving problems that show themselves on the individual farms, it was explained.

Since the accounting work has the cooperation of the county farm advisers, these agents have carried the results and benefits of the project to hundreds of other farms not reached personally by the college representatives, according to Hudelson.

Types of accounts represented among the 1,800 farmers are as varied as the different types of farming practiced in the state. Thirteen hundred of the account keepers are using the simple financial record of the entire business. Two hundred fifteen are organized in an association and pay part of the cost of a more detailed accounting on their business. Two hundred fifteen dairy farmers are keeping detailed cost accounts on their dairy businesses, in addition to a simple financial record of the entire farm. Thirty-three fruit growers in southern Illinois are keeping cost records designed to show the cost of developing and operating orchard land. Finally, 42 farmers about half of whom are in central Illinois and half in the southern part of the state are doing the most complete accounting of all. They keep careful daily cost records on all their farm enterprises. These complete cost records take much time, both on the part of the farmer operators and the college representatives, but they are kept as a matter of research and give definite information on the cost of producing farm products, as well as the relative costs and interdependent relationships of the parts of the farm business. They also answer many questions concerning the effects of different ways of organizing and managing the farm, Hudelson pointed out.

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## Spends $45 With Herd Improvement Association And Saves $360

Visiting around among their fellow members, farmers and dairymen belonging to the Brown-Schuyler Dairy Herd Improvement Association recently found one of their number who is getting a return of about $360 a year on his investment of $45 annually for a membership in the association, it is reported by J. H. Brock, assistant in dairy extension at the College of Agriculture, University of Illinois, where the work of these associations is supervised.

He is Guy Whitson, whose herd of high grade Jerseys has been producing well for a long time and for several months has led the association in production. When the association began operation this past spring, Whitson was feeding his cows well, but after he had done some figuring with the tester for the association he found that he could save a cash outlay of $1 on each 100 pounds of feed by using a home mixed ration instead of a ready mixed one. He uses about 3,000 pounds of feed a month, thus affecting a saving of about $30 a month, or $360 a year, as a result of investing $45 in an association membership.

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## Famously Fertile Illinois Soils Not Too Good For Improvement

Renowned for their productiveness, most Illinois soils will, nevertheless, respond profitably to some form of soil treatment, it is shown by results from 27 of the soil fields maintained in different parts of the state by the experiment station o the College of Agriculture, University of Illinois. Most recent yield figures from th fields are reported in detail in the current issue of, "A Year's Progress In Solving Farm Problems of Illinois," which is the fortieth annual report of the experiment station.

Designed as studies of soil management and treatment, the investigations on the various fields are, in the main, comparisons of combinations of limestone, rock phosphate and kainit in livestock and grain systems of farming. On most of the fields seven different combinations of soil treatment have been compared with no treatment.

One of the striking things brought out in the records is the marked difference in the yields from untreated land on these fields. Untreated land on the best field, for instance, produced seven times as much an acre as untreated land on the poorest field. In both the livestock and grain systems of farming, the best treatment for the more productive soils usually was manure or residues alone. The less productive soils had to have, in addition, various mineral combinations for the best results In general, net returns from soil treatment were much less from the more fertile soils than from the moderately and less fertile soils.

Another point of interest about the results is the influence of soil treatment in raising the level of production on very poor land. On the Ewing field, for instance, the annual acre value of the crops from untreated land was only $6.39. Out of this the farmer would be expected to pay his taxes, interest or rent and labor expenses and hope that enough would be left to support his family. When, however, this land was treated with manure and limestone, the total annual value of the crop, aside from the cost of the treatment, increased to $23.53 an acre, making the chances for profit much greater.

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## Alfalfa Acreage Takes Big Jump As Legume Gets Proper Place

Alfalfa acreage in the corn belt has increased more than 1,000 per cent in the last ten years, thus indicating that farmers in northern and central Illinois are becoming better acquainted with this legume and are beginning to give it its proper place in their soil and crop programs, says F. W. Gault, of the agronomy department, College of Agriculture, University of Illinois. Instead of relegating alfalfa to some out-of-the-way area, as was once the practice, many farmers are keeping a definite acreage of alfalfa in their crop rotation, allowing the crop to stand from two to five years, he adds.

This increasing popularity of the crop is not hard to explain, for alfalfa stands without a peer as a forage crop when conditions are made right for it, Gault pointed out. In general, alfalfa is more resistant to drouth and winter-freezing than red clover and, being a perennial, may occupy the land for a number of years, although under corn belt soil and climatic conditions the alfalfa has a tendency to be crowded out after five or six years by bluegrass. Conditions which must be provided to make alfalfa a success are a sweet, fairly fertile soil with adequate drainage, well supplied with proper bacteria through inoculation of the seed.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X October 26, 1927 Number 43

## U. of I. Research May Help Clear Up Obscure Pig Disease

A hitherto obscure disease of pigs, which has been unusually prevalent and severe in Illinois and surrounding states this year, today seemed nearer solution than ever before when Dr. Robert Graham, chief in animal pathology and hygiene at the College of Agriculture, University of Illinois, announced that he and his associates had succeeded for the first time in reproducing the disease experimentally by feeding pigs moldy, inferior corn. The disease is vulvovaginitis and so far as is known this is the first time that it has been reproduced in experimental animals.

In the beginning, it was thought that the disease was contagious, but the studies made to date by Dr. Graham and his two co-workers, Drs. E. A. Tunnicliff and E. A. McCulloch, definitely indicate that whatever the cause may be it is of dietetic nature, that is, contained in the feed and taken in by the pigs through their digestive tracts. It is being recommended, therefore, that wherever the disease occurs the corn being fed should be discontinued or the unwholesome corn discarded.

The disease is characterized by the swelling of the external genitals of female pigs. Specimens and inquiries coming to the college's animal pathology laboratory, as well as reports from veterinarians, indicate that the disease has never been as prevalent as it was during the past summer. Apparently, the trouble has not occurred to any appreciable extent in the northern and southern parts of the state, but in central and western counties as high as 95 per cent of the herds in a single community have been affected.

In reproducing the disease experimentally, Dr. Graham and his associates fed the pigs inferior corn from the farm of J. H. Belt, in McLean county, where an outbreak had occurred. Healthy pigs fed this way developed the disease in from three to five days and continued to show the symptoms as long as the feed was continued. However, when the feeding of the inferior corn was discontinued, the disease subsided.

There is no resistance developed from one attack, as pigs have been alternated on the bad and good feed and the disease consistently reproduced following the feeding of the bad grain. It also is suggested in connection with the investigations that pigs which have been afflicted for several weeks might prove to be inferior sows, Dr. Graham said. It is encouraging that practicing veterinarians have confirmed these observations in the field, he added.

The causitive agent of the disease is water soluble, but the precise character of the material in the corn which causes the swelling of the external genitals is not known. Further studies are being made in this direction.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8 1914. H. W. MUMFORD, *Director*.

## Public Interest Shows Horse Is Still Far From Thing Of Past

Automobiles and motor trucks may be putting "old Dobbin" out of business, but an estimated 45,000 people literally "left their automobiles" to take in the 1927 series of 13 horse and mule pulling contests staged by the College of Agriculture, University of Illinois at various county and district fairs, it is reported by E. T. Robbins, livestock extension specialist, who had charge.

Held partly for the purpose of finding out the how and why of pulling power in horses and mules, the 1927 series of contests drew 148 teams and resulted in two state records. A new state mark for horses was set at the Grundy county fair at Mazon when a 3,770-pound pair of black Percheron geldings, owned and driven by E. B. Reeves, Morris, pulled the college dynamometer the official distance of 27½ feet when it was set at a lifting pull of 3,000 pounds. A new state record for mules was set in a contest at the agricultural college when a span of gray mules from the animal husbandry department set a mark of 2,300 pounds for 27½ feet. The mules stood 16 hands high and weighed 2,825 pounds. Their record was equalled but not excelled at Mazon by a similar span of mules owned by M. Stark.

Of the 148 teams entered in the 13 contests, 85 were entered in the class for teams under 3,000 pounds and 63 in the class for pairs weighing 3,000 pounds or more. The highest record set in the light class was a pull of 2,450 pounds made by the team of E. J. Longley, Aledo. These were gray Percheron geldings standing 16 hands high and weighing 2,840 pounds. This record lacks only 25 pounds of equalling the state record for light teams made last year by a pair of 2,930-pound grade Clydesdales owned by C. F. Faber, LaMoille.

Interest among the 45,000 spectators ran high at all the contests, according to Robbins' report. In a number of cases the local officials were unable to keep the crowd from pushing up too closely around the competing teams. At Aledo the policemen said that the contest beat anything they had ever seen for interest. At Princeton the crowd overflowed the grandstand and overran the race track where the contest was held so that it was almost impossible to give the teams a fair chance.

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## Shows How Home Garden Can Supply Vegetables Year Around

If the proper precautions are taken, the abundance of excellent vegetable crops that are to be found in every home garden in the fall season may be saved so that fresh vegetables are easily provided through the year, says L. H. Strubinger, of the horticulture department, College of Agriculture, University of Illinois. "Such crops as potatoes, beets, carrots, turnips, rutabagas and celeriac that do not stand freezing temperatures may be stored in regular root storage cellars, in surface storage pits or in a cool basement room without any serious loss in quality. The leafy crops such as cabbage, celery, leeks, kale and parsley may be kept in a pit hotbed where growth will continue during the milk weather of fall and early winter. If more protection is given as more severe weather approaches, these crops may be retained for two to four months in very good condition. Pumpkins, squashes and sweet potatoes may be stored in the furnace cellar and onions in the attic where they should keep throughout the winter. Tomatoes and peppers may be saved for several weeks either by pulling the vines and hanging them up in a cool basement to ripen or by picking only the well developed specimens and putting them away to ripen.

"By means of a hotbed or cold frame, late crops of lettuce and radishes may be grown after the growth of unprotected plants has stopped. The same method may be used early in the spring before the weather will permit any growth in the open."

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## Soil Field Results Rank Alfalfa High As A Soil Builder

Alfalfa can hold its own with the best of the legumes in the matter of soil improvement, judging by actual yield records from the soil experiment fields of the College of Agriculture, University of Illinois.

On the Dixon soil field, for instance, untreated land made 48 bushels of corn an acre in a clover rotation as compared to 57 bushels an acre, or 9 more, in an alfalfa rotation, according to figures cited by F. W. Gault, of the agronomy department. At Mount Morris untreated land yielded 51 bushels of corn an acre in a clover rotation and 68 bushels, or 17 bushels more, in an alfalfa rotation. These yields are not just for one year, but instead are an average for six years, Gault pointed out.

"Furthermore, alfalfa is growing in popularity as a biennial legume among the more wide-awake farmers of the corn belt. Alfalfa is seeded either alone or in a clover-alfalfa mixture and treated as the usual clover crop, being allowed to stand over only one year. At Carlinville, such a mixture of red clover and alfalfa, seeded in the spring of 1924, made more than 5 tons of prime hay in 1925 on land previously treated with manure and limestone. Where rock phosphate was used in addition to manure and lime, the yield was 6.4 tons of hay an acre. Four cuttings of the mixed legumes were removed, the last two cuttings being nearly pure alfalfa. The following year, a similar seeding produced more than three tons of hay an acre under very unfavorable weather conditions and with a heavy infestation of weevil.

"Some of the more common alfalfa rotations being practiced are: corn, oats or barley and alfalfa; corn, corn, oats and alfalfa; corn, oats or barley, wheat and alfalfa; corn, oats, clover, wheat and alfalfa; corn, corn, oats, clover, wheat and alfalfa."

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## Nine Cows Already Qualified For Membership In Select Club

Memberships in the Illinois 500 Pound Butterfat Cow club were claimed by two more heavy milkers during the past month, bringing the total number of cows which have met the requirements of the club up to nine and leaving a big field of other contenders three months in which to come under the wire, it is announced by C. S. Rhode, dairy extension specialist of the College of Agriculture, University of Illinois, who has charge of the club. James M. Hazzard, Wilmington, Will county, and William Welch, McLean, McLean county, are the owners of the two newcomers whose respective records at the end of the first nine months in an allotted year are 512.8 pounds and 510.3 pounds of butterfat. Owners of all nominated cows which are successful in producing 500 or more pounds of butterfat in a year's time will receive the official gold medal of the club. In this way, the state's high producers will be given due recognition and it will be demonstrated to other farmers and dairymen that economical milk and butterfat yields are the result of good breeding, proper feeding and the right kind of care and management.

A purebred Holstein owned by W. T. Rawleigh, Freeport, that led at the end of eight months with a record of 624.4 pounds of fat is still in the lead at the end of nine months with a butterfat poundage of 711 to her credit. Owners of the six other cows which have met the requirements of the club, together with the butterfat records, are: J. R. Logan & Son, Seward, 626.1 pounds; V. Rice Brothers, Dallas City, 587.1 pounds; Arthur D. Cornue, Hebron, 556.6 pounds; H. N. Fox, Palestine, 549.3 pounds; H. W. Bischoff & Sons, Lockport, 545.1 pounds and Harry Flack, Stockton, 501.9 pounds.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X | November 2, 1927 | Number 44


## Survey Report Shows Success Of Extension Work in Illinois

Inaugurated 13 years ago under the federal Smith-Lever act, the cooperative extension work as carried on by the College of Agriculture, University of Illinois and the federal department of agriculture has succeeded in establishing new and improved practices on a vast majority of farms and in a high percentage of farm homes, according to the official report just released on a survey made by the department and the college in McLean and Macon counties.

Personal interviews were held with farmers and farm women on 590 contiguous farms in representative areas of the two counties with the result that 86 per cent of the farms and 65 per cent of the homes were found to be using the improved practices, according to the report. It was prepared by M. C. Wilson, of the federal extension service, and W. H. Smith and Kathryn Van Aken, the respective state leaders of farm and home advisers in this state. These three directed the study.

Means most frequently reported as having influenced the adoption of improved agricultural practices were the indirect spread from one neighbor to another, the news story, the office call, the method demonstration meeting, and the general meeting. The farm visit, the bulletin and the adult result demonstration were other important influences, it is reported.

The outstanding influence in the adoption of home economics practices was the method demonstration meeting, according to the report. This was followed by the news story, the indirect spread and the general meeting.

Owner-operators reported the adoption of about 25 per cent more improved practices than tenant-operators, according to the report. The number of improved practices also mounted with increased size of the farm.

Education apparently is no longer hampered by distance, for fully as high a percentage of the farms and homes more than 10 miles away from the county advisers' offices adopted practices as did farms and homes less than 10 miles away, the report points out. Bad roads, however, seem to be as much a handicap as ever, for farms on improved roads had 40 per cent greater adoption of practices than farms on unimproved roads, it is shown. The number of improved practices reported adopted on farms where there were telephones in the home was nearly 50 per cent greater than where there were no telephones.

Status of membership in the county farm bureau and home bureau, which cooperate with the extension service, had a direct relationship to the adoption of improved practices, it was found. The spread of better farm practices was much greater to non-members than the spread of better home practices to non-members.

Thirty-six per cent of the boys and girls of club age at the time the data were collected had been in 4-H club work at some time or other, according to the report.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. Mumford, *Director*.

## Special Legume Train To Visit 25 Points, November 7 to 15

Carrying a corps of speakers and numerous exhibits to drive home profit-producing ideas and facts on safe cropping systems, the alfalfa-sweet clover special demonstration train to be operated across central Illinois November 7 to 15 will visit 25 cities and towns, according to the final itinerary announced today. Cooperating in the operation of the train are the Wabash railway and the College of Agriculture, University of Illinois.

Arrival and departure times for the first five days, as announced by officials of the railroad, are as follows:

November 7 - Homer 8:45 to 10:45 a.m., Cerro Gordo 12:15 to 2:15 p.m., Gibson City 3:45 to 5:45 p.m., and Monticello 7:30 to 9:30 p.m.

November 8 - Lovington 8:40 to 10:40 a.m., Windsor 11:40 a.m. to 1:40 p.m., and Altamont 3 to 5 p.m.

November 9 - Illiopolis 8:45 to 10:45 a.m., Springfield 11:30 a.m. to 1:15 p.m., New Berlin 1:50 to 3:30 p.m., and Chapin 4:30 to 6 p.m.

November 10 - Pittsfield 9 to 10:45 a.m., and Mount Sterling 1:30 to 3:15 p.m.

November 11 - Clayton 8:45 to 10:45 a.m., Bowen 12 noon to 1:45 p.m., and Carthage 2:45 p.m. to 4:30 p.m.

An addition to this schedule provides for stops at Taylorville, Blue Mound and Decatur on November 12, at Edwardsville, Litchfield and Raymond on November 14 and at Sibley, Forrest and Emington November 15. These stops are listed in their probable order, although final decision on this rests with the traffic department of the Wabash. The exact schedule for the three days is expected to be announced soon.

Featuring the stops at each of these points will be a program of five talks by specialists of the agricultural college and state natural history survey. C. M. Linsley or F. W. Gault, of the agronomy department, will discuss, "Making the Soil Fit By Growing Legumes"; J. C. Hackleman or E. A. Hollowell, of the agronomy department, will outline, "Guideposts in Successful Legume Production"; E. T. Robbins, of the animal husbandry department, will speak on, "Cashing in on Sweet Clover and Alfalfa With Livestock"; W. J. Fraser, dairy department, will take the subject, "Alfalfa and Sweet Clover - Cornerstones in Dairy Cattle Feeding", and J. H. Biggar, assistant entomologist of the Illinois Natural History Survey, will talk on, "The Value of Sweet Clover and Alfalfa in Corn Borer Control."

Success-promoting soil and crop practices worked out in careful investigations and special studies at the agricultural college will be featured in three special exhibit cars. These exhibits will show how and why to test soils for acidity, sweet clover's value as a soil improver, the necessity of inoculating legume seed, proper stages at which to cut alfalfa, superiority of northern grown seed, facts about the new federal seed staining law, proper alfalfa hay-making methods, value of legumes for feed and pasture, insects which damage alfalfa, control of bacterial wilt of alfalfa, fighting the corn borer with legumes and soybean products, varieties and grades.

In order to help farmers along the line check up on soil acidity, that bugbear of successful legume production, specialists of the agricultural college will test all samples of soil that are brought to the train.

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## Many Farm Leaders Commend Fortieth Annual Station Report

High esteem in which the research and investigational work of the experiment station, College of Agriculture, University of Illinois is held by national farm leaders and authorities is reflected in scores of letters received by Director H. W. Mumford since the recent publication of the fortieth annual report of the station, entitled, "A Year's Progress in Solving Farm Problems of Illinois."

Outstanding because of the new-record speed with which it was placed in the hands of farmers, the report has brought letters of commendation from Frank O. Lowden, owner of Sinnissippi Farm, Oregon; Sam H. Thompson, president of the American Farm Bureau Federation; Samuel R. Guard, editor of Breeder's Gazette; E. S. Bayard, editor of the Stockman-Farmer Publishing Company, Pittsburgh, Penn., and deans and directors of numerous state agricultural colleges and experiment stations.

Among the latter are Dean E. J. Kyle, of Texas; Dean and Director Edward C. Johnson, of Washington; Director G. I. Christie, of Purdue; Dean A. R. Mann, of New York; Dean and Director W. R. Dodson, of Louisiana; Dean and Director H. Umberger, of Kansas, and Dean and Director W. C. Coffey, of Minnesota.

That the Illinois station has been making agricultural history during the past 40 years, is the opinion voiced by one agricultural leader who is especially prominent just now, while another national leader pointed out in his letter that the report closes 40 years of successful and constructive research work at the station.

"Worth its weight in gold," is the way one farm paper editor valued the report, and added that throughout the year it would be a source book of facts and inspiration. A second editor called attention to the expansion and progress that had taken place at the Illinois station during the past 40 years.

One agricultural college dean wrote in acknowledgment of the report, "Permit me to congratulate you upon the high character of the publication. I also want to take this opportunity of congratulating you and your institution on the outstanding class of research work done at the University of Illinois during the past 50 years." A second dean and director wrote, "This is an excellent story of the big work accomplished in your state," while still another suggested that it might make an interesting contrast to incorporate the first report of the station as part of the fiftieth, ten years hence.

Covering 288 pages, the fortieth annual report of the station gives the last minute results on 215 distinct research and investigational projects conducted during the past year by the station.

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## Dormant Spraying Now Will Check Bad Outbreak of Leaf Curl

A bad outbreak of peach leaf curl can be expected in Illinois orchards next spring if conditions are favorable for this disease, and consequently growers should protect themselves against threatened losses by doing the necessary dormant spraying in this season of the year, it is pointed out by Dr. H. W. Anderson, associate chief of pomological pathology at the College of Agriculture, University of Illinois. Good commercial growers who, in the past, have put off the dormant spraying until spring have found that it is extremely difficult to get the spray on the trees early enough to be effective against the leaf curl, he reported. Therefore whenever it is possible to do so, the necessary spray applications should be put on in the fall or early winter, it was recommended.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X November 9, 1927 Number 45


## Better Farm Management More Important Than Higher Price Levels

Differences in the way farms are organized and operated may lead to variations of as much as $5,000 a year in the net earnings of farmers in the same community, Prof. H. C. M. Case, in charge of the farm organization and management departme of the College of Agriculture, University of Illinois, told Illinois bankers in their two-day agricultural short course at the college this week.

To learn this lesson and profit by it is of more importance to many farmers than to have the level of farm prices raised to a satisfactory level with other prices, he said. However, it was pointed out, average farm earnings are too low at present to maintain a stable agriculture, while the better earnings realized on a few farms are the result of years of intelligent planning and development of a good system of farming.

Five-year records gathered by the agricultural college from 51 Woodford county farms show that usually the difference in earnings varies more than 10 per cent on the investment between the high farmer and the low farmer in any one year, the speaker explained.

"As an average for the five-year period, the best farm made 8 1/3 per cent more on the investment than the farm with the lowest earnings, a farm that lost money. The average investment on these farms was $59,225. Hence, the difference in the earnings between the high and low farms computed on the average investment would amount to approximately $5,000 a year. For the five-year period, the difference would amount to approximately $25,000.

"In the course of the five-year period, this difference would be enough to make an initial payment on an average central Illinois farm."

In tracing the reasons for wide variations in farm income, it has been found that some men are successful because of following certain principles, while other farmers get less successful results through failure to observe these principles, Prof. Case explained.

Discussing these principles, the speaker said that studies made of the factors which influence farm earnings in east central Illinois show that good yields help reduce costs, the higher profit crops should be selected, productive livestock reduces costs, good livestock well handled adds to the farm income, available man labor must be used advantageously, the supply of horse and mechanical power should fit the farm needs, buildings, machinery and other equipment costs must be kept under control, production should be planned in accordance with market demands, a good farm layout makes for economical operation, a large volume of business is necessary for profitable farmings, and diversity of production is desirable.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914 H. W. Mumford, *Director*

## Dairyman Increases Returns 52 Per Cent Through Better Feeding

A 52 per cent increase in the returns which he received over and above feed costs is the reward reaped by F. Cracraft, one of the members of the Will County No. 2 Dairy Herd Improvement Association, for balancing his cows' ration at the suggestion of the tester for the association, according to a report by J. H. Brock, assistant in dairy extension at the College of Agriculture, University of Illinois, where the work of these associations is supervised.

At the time the change in feed was made, Cracraft was feeding corn and cob meal and oats, a combination that was low in protein for the quality of pasture the cows were on. Herman Raater, tester for the association and a graduate of the U. of I. agricultural college, sensed this and left a feeding chart giving suggestions for changing the feed of the cows. The feed was changed to a ration of 350 pounds of corn and cob meal, 350 pounds of oats, 200 pounds of bran and 100 pounds of cottonseed meal. In order to supplement the pasture that the cows were getting, a small amount of clover hay was fed in addition to the grain.

The same ten cows were being milked the month after the change was made as was the case the month before. During the month before the change, the cows averaged 669 pounds of milk and 21.5 pounds of fat, returning $70.27 over and above the cost of the feed they ate. During the month after the change to a balanced ration, the average production of the cows was 781 pounds of milk and 29.8 pounds of fat, the return above feed costs having mounted to $113.88. Ten per cent of this increase was due to an increase in the price of milk, but that still left an increase of 52 per cent to the credit of the balanced ration.

Because of the more efficient production which resulted from the balanced ration, the feed cost for 100 pounds of milk was reduced 10 cents and the feed cost of a pound of butterfat, 8 cents.

Greater production at less cost as a result of feeding suggestions offered by testers in the dairy herd improvement associations is easy to get and will return a high rate of interest on the membership investment, Brock said. Furthermore, this service is only one of many offered to progressive dairymen under the herd improvement association plan, he added.

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## Losses At Farrowing Time Reduced By Breeding Records On Sows

Scribble them on the side of the barn, jot them down in a pocket note book or write them in a definite record book, whichever is most convenient, but keep some kind of breeding records on sows and thereby greatly reduce pig losses at farrowing time, is the suggestion of Dr. W. E. Carroll, chief in swine husbandry at the College of Agriculture, University of Illinois.

It takes approximately 114 days after breeding before the litter is farrowed. If the farrowing date is thus approximately known, it is possible to have the pens ready and the sows thoroughly washed free from worm eggs and put into the pen a few days before farrowing. Sows that farrow early also can be looked after carefully when their date of farrow is known.

Some farmers keep a definite record book which gives not only the breeding date, but also the number of pigs farrowed and raised by each sow. This added information is extremely valuable when selecting gilts to go into the breeding herd.

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## Getting Early Lambs To Market Quickly Pays Sheep Raisers Best

Realizing as much as $20 a hundredweight on their spring lambs, many Illinois farmers this past year demonstrated that the way to get the most money out of this crop is to produce the lambs early and then push them along for market before the middle of June, it is reported by E. T. Robbins, livestock extension specialist of the College of Agriculture, University of Illinois. This plan of having the lambs dropped in the winter, feeding them grain while they are nursing the ewes and then selling them before the middle of June is the one recommended for Illinois farm flocks by the college animal husbandry department, because lambs are really worth more dollars a head in the spring than they ever are worth again.

A. E. Webb, of Nauvoo, one of the many farmers who followed this plan this past year, reported that he sold some of his lambs for as high as $24 a hundredweight. In contrast lambs on other farms which were kept through the summer and sold this fall are bringing only about $14 a hundredweight. For a number of years past, the usual decline in price of lambs from spring to fall has been $2.50 and $5 a hundredweight, Robbins said.

## Poor Gooseberry Yield Was Result Of Too Little Dormant Pruning

Too little pruning done during the dormant season last fall was responsible for the poor yields from healthy gooseberry bushes, about which considerable complaint was made this past season, according to Dr. A. S. Colby, of the pomology division, College of Agriculture, University of Illinois. Growers therefore should not hesitate to prune heavily in their small fruit plantations this fall, removing the oldest canes of currants and gooseberries and some of the strong as well as all of the weak canes of the brambles, he recommended. The laterals also should be cut back about one-half on raspberry and blackberry bushes, he added.

"This is the best time to prepare the bush fruits and brambles for the winter. Pruning small fruits in the dormant season is generally recommended, partly because of the time available when other work is not so pressing. The earlier it is done the better, because insects, such as tree crickets and cane borers, and diseases, like anthracnose, crown gall and cane blight, are controlled more satisfactorily by early removal of infested wood. Another reason for getting the job done as soon as possible is that the weather is not so disagreeable and more care will be taken to do a good job of pruning. Then, with the bushes opened up and the unnecessary canes removed, especially at the base, the mulch of straw or strawy manure can be more easily and quickly applied.

"The manner of pruning and the amount of wood to remove depends upon the kind and variety of fruit, the soil and climate and the amount and kind of cultural care given the plants. All prunings should be removed and disposed of by burning since insects and diseases are present in many small fruit plantations and their control is thus made easier.

"After the necessary pruning has been done, it usually is advisable to apply a mulch of straw, strawy manure or other similar material at least once in two years. It has been found at the experiment station of the agricultural college that larger and better crops of fruit are thus secured with less hand labor about the plants during the growing season. In the case of brambles fewer suckers are produced, resulting in stronger and fewer fruiting canes for next year's crop."

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X November 16, 1927 Number 46

## Illinois Bankers See Farm Problem In New Light At Short Course

Illinois bankers were shown the farm problem in a new light when they gathered at the College of Agriculture, University of Illinois, for their recent bankers' agricultural short course, arranged for them at the request of the Illinois Bankers' Association. Dean H. W. Mumford put the new light on the situation when he suggested to the bankers that the opportunity open to agricultural colleges, banks and all others interested in the welfare of agriculture was to get the good farmer and the good farm together. Average farming on the average farm is a losing game, he pointed out.

Voicing his faith in the future of farming, Dean Mumford said, "If there is any place in the United States where we can have the right kind of farming and satisfactory farm life, it ought to be right here in Illinois."

Approximately 150 turned out for the sessions of the two-day short course, bankers being present from 32 counties, two other states and one foreign country. This was a new record for interest and attendance, and officials of both the college and the bankers' association were encouraged by the showing made. "Bankers are coming to realize that they have a real opportunity to get new facts and keep close to the farm situation by attending these short courses," W. M. Givler, Naperville, and chairman of the agricultural committee of the Illinois Bankers' Association, said in discussing the success of the course. This is the third year that it has been held.

The present farm business situation, current earnings of Illinois farmers, possibilities for boosting the returns from dairying, the relation between soil fertility and land values, means of getting new information to farmers of the state, solution of soft corn problems through livestock feeding, fruit and vegetable marketing problems, investigational results in the use of combined harvester-threshers in Illinois, the importance of making preparations for seed corn needs and cooperation of bankers in carrying out the extension program in a county, were among the subjects discussed by department heads and other staff members of the college.

Counties represented at the course included Peoria, Shelby, Lake, Macon, Woodford, Madison, Vermilion, Christian, Fulton, Champaign, LaSalle, Tazewell, Whiteside, DeWitt, Lee, Cass, DuPage, Iroquois, McDonough, Cook, Effingham, Montgomery, Macoupin, Saline, Carroll, Ford, Will, Logan, Livingston, Douglas, DeKalb and Boone. Indiana, Arkansas and South Africa also were represented in the attendance.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. Mumford, *Director*.

## Installation of Feeding Mixing Service Would Save Dairymen Money

Use of ready mixed feeds by dairymen seems to be on the increase, if one may judge by reports being received. There are several reasons which justify the use of these feeds in many cases. In some localities it is impossible for a dairyman to purchase the kinds of protein supplements which he needs to mix with his farm grains in order to provide a balanced ration. Another important factor is that many farmers lack grinding facilities for preparing good rations at home. Under such circumstances many dairymen have found that the use of ready mixed feeds is profitable because they get greater milk production by feeding a ration containing a sufficient amount of protein. Of course, the convenience of the ready mixed feeds is also an item in their favor.

Feeding dairy cows by the use of ready mixed feeds is, however, usually more expensive than when the farm grains may be ground at home and mixed with purchased protein concentrates. When ready mixed feeds replace the feeds grown on the farm entirely, it is necessary for the farmer to market his own farm grains and then to buy back some of these same constituents in the form of the purchased feed. This means that he must pay for the expense of marketing his own grain, pay transportation costs upon it as well as transportation costs and profits on the ready mixed feed. Besides this there is an expense for sacks which is about $2.80 a ton more for sacked feed than for the same feed in bulk.

Farm bureaus or other cooperative organizations might render their members a great service by providing facilities for grinding and mixing feed. This might be done by providing, at some feed mill or elevator, a grinding outfit to which the farmers might bring their corn or oats. A reasonable charge should be made for grinding and such protein feeds as are necessary to be mixed with the ground corn and oats to give a well balanced mixture should be furnished at a very reasonable cost and the mixing done at the mill. Under this plan the mill could buy these protein feeds such as wheat bran, linseed oil meal or cottonseed meal in carload lots and thus save the farmer $10 to $15 a ton over what he would pay if purchasing these a few sacks at a time. If several such feed mills were established at different points in the county, it would be possible to keep on hand quite an assortment of these protein feeds and purchase them in carload lots. If an entire carload were not needed at one plant it could be shipped to the first plant at the carload rate and the balance of the feed could then be re-shipped to another plant.

The dairy department of the College will be glad to assist in such a project by furnishing directions for making up mixtures to be fed with the particular kinds of roughage which each farmer has available.-W. B. Nevens, Assistant Chief in dairy cattle feeding, College of Agriculture, U. of I.

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## Winter Forcing Of Rhubarb Profitable In Illinois, Bulletin Says

Winter forcing of rhubarb on a commercial scale is a profitable enterprise in Illinois, while the market for the forced product can be considerably developed in this state, particularly in the smaller cities, according to a new bulletin, "Winter Forcing of Rhubarb," which is to be distributed soon from the experiment station of the College of Agriculture, University of Illinois. It reports the results of investigations with different forcing temperatures, the effect of watering the roots on the yield and color of forced rhubarb, the best age of roots for forcing, the effect of different intensities of freezing and different lengths of freezing periods in breaking the rest period and increasing yields, and the length of rest period needed to produce maximum yields.

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## Barley Rapidly Coming To Front As Important Crop In Illinois

Already an important crop in the northern fourth of the state, barley has come to the front so fast in Illinois that seven times more of it was grown this year than was the case only 11 years ago, it is reported by George H. Dungan, Robert W. Stark and W. L. Burlison, of the agronomy department, College of Agriculture, University of Illinois, in a new bulletin which is to be released soon.

Low market prices for oats and comparative low yields of this crop are cited by the specialists as the reasons for the increase in the popularity of barley. Farmers, especially those in the central and northern part of the state, are only following good practice when they use barley as a substitute for at least part of the oats acreage, the specialists say.

On the basis of gross acre value, barley has topped oats by 29 per cent as an average of the ten-year period 1916 to 1925 in Illinois, the bulletin will point out. Barley has exceeded rye by 37 per cent and hay by 13 per cent. Corn has surpassed barley by 22 per cent and wheat has outdone it by 6 per cent. If the net acre value of these crops was considered, barley would likely compare more favorably with corn, according to the specialists.

With the development of high yielding barleys having smooth, or barbless, beards, toward which much progress already has been made, barley will be entitled even to more favorable consideration than it has already received, it is pointed out by the specialists.

Seeking improved varieties of barley, the college has tried out eight different varieties on its crops experiment field at DeKalb in northern Illinois and nine varieties at Urbana in central Illinois. The varieties at DeKalb have been tested all the way from one to ten years and the varieties at Urbana from one to eleven years. Oderbucker, Wisconsin Pedigree, Silver King and Black Barbless have yielded the highest on both these fields. On the DeKalb field, Michigan Black Barbless has averaged 55.4 bushels an acre, Oderbucker 55 bushels, Wisconsin Pedigree 53.9 bushels and Silver King 50.3 bushels. The average yields on the Urbana field indicate that these varieties also are the best adapted for central Illinois.

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## Serious Commercial Damage By The Corn Borer Can Be Avoided

Serious commercial damage by the European corn borer to the nation's two billion dollar corn crop can be avoided to a considerable extent, judging from the effectiveness of the measures used in the $10,000,000 spring cleanup campaign waged against the borer. This belief is expressed in an official statement to the College of Agriculture, University of Illinois from W. M. Jardine, secretary of agriculture. In addition to giving the final results of the cleanup work in the campaign area, the statement indicates the attitude of the federal department of agriculture toward further activities in connection with the corn borer fight. Adequate studies of the life history, habits and relation of the borer to environment, the breeding of varieties of corn adapted to corn borer conditions, the development of parasites of the borer, research in the use of different fertilizers and the improvement of machinery for mechanical control are greatly needed, Secretary Jardine points out in his statement. For some time the U. of I. agricultural college, cooperating with the Illinois Natural History Survey, has been conducting experiments along these and other lines.

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The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X November 22, 1927 Number 47

## Corn Crop In Illinois Nipped By Frost About Every Fifth Year

The soft-corn menace, which had Illinois farmers worried for a time this fall and which caused no little concern in trade circles, bobs up about once in every four or five years in Illinois, according to Prof. H. P. Rusk, head of the animal husbandry department of the College of Agriculture, University of Illinois, who has supervised many experiments on the best way to utilize frost-damaged corn.

In soft-corn years, a considerable portion of Illinois' normal crop of 355,000,000 bushels is caught before it is mature, thus causing large amounts of soft and chaffy corn that cannot be stored safely in ordinary cribs and that finds a poor outlet on the market because of its high moisture content and the consequent risk of spoilage in storage or transit.

The feeding value of soft corn is little appreciated and almost universally underestimated by practical feeders, but nevertheless, results of studies at the experiment station of the agricultural college indicate that the most profitable way of disposing of soft corn is to feed it to livestock, Professor Rusk said. In fact, these experiments show that ear corn silage, one method of soft corn utilization which has been tried out at the experiment station, would materially reduce the losses in soft corn years, if it was generally adopted.

This method, in which the snapped ears are made up into silage as soon as possible after frost, has proved to be the most satisfactory method of storing immature corn so that it will not spoil. In several trials, silage made from soft ear corn has kept perfectly and when properly balanced with a good nitrogenous concentrate and a legume hay has given satisfactory results in cattle feeding operations, Professor Rusk said. Further tests with this form of soft-corn utilization have just been started at the experiment station.

Feeding trials at the station show that the most significant difference between well preserved soft corn and mature corn is merely one of water content. Sound, mature corn contains less than 20 per cent water, while soft corn may contain as high as 50 per cent. Dry matter in soft corn has practically the same chemical composition as has the dry matter in sound corn, while pound for pound, the dry matter in soft corn is practically equal to the dry matter in mature corn for cattle feeding operations.

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Combined harvester-threshers, introduced into Illinois from the far west only three years ago, have shown such striking advantages in the saving of grain and in reduction of power and labor required in threshing that more than 300 of such machines are estimated to have been used in this state this year, according to E. W. Lehmann, head of the department of farm mechanics, College of Agriculture, University of Illinois.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. Mumford, *Director*.

## Expansion Of Dairy Herd Improvement Plan Follows Past Success

Truth of the saying that, "Nothing succeeds like success," is borne out in recent developments within the dairy herd improvement movement in Illinois, three new associations having been organized on the strength of the good work already done by previous associations, it is announced by J. H. Brock, assistant in dairy extension at the College of Agriculture, University of Illinois, where the work of these associations is supervised.

One of the three new associations will operate in Boone county, where one group of farmers already has been using the herd improvement plan for the past eight months. Organization of the second association is attributed largely to the results which the first organization was able to show in helping its dairymen-members put their herds on a better paying basis. Carroll county, where another one of the three new associations has been formed, is getting back to the herd improvement plan after interested dairymen in that county have been without an association for the past nine months. The third one of the three new associations will serve dairymen in the three counties of St. Clair, Monroe and Randolph. Monroe county dairymen have seen the merits of the herd betterment idea demonstrated right in their own county but it has been several years since they have had an association, Brock said.

With the organization of the three new associations, more than 900 dairymen belonging to 33 different associations serving 46 counties are having approximately 14,000 cows tested every month so that definite figures on the efficiency of every cow are available, Brock said.

"Besides knowing the production of each cow and the variations in the efficiency of the different cows in their herds, members of these associations have a business basis for culling their boarder cows, they know which are the best cows from which to raise calves, they can find out something about the worth of their herd sires, they are encouraged to take better care of their cows because of the friendly competition between members of the association and they can check up on the efficiency of their separators."

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## First Meat Judging Contest At Kansas City Royal Won By Illinois

The distinction of winning the first meat judging contest ever held in connection with the American Royal Livestock Show at Kansas City, Missouri, and the second such contest to be held in the United States goes to a team of three Illinois boys who competed under the colors of the College of Agriculture, University of Illinois. They are Leland Gard, of Bone Gap; J. W. Rankin, Rockford, and H. H. Goudie, Oswego. All are seniors in the college. The team gets a large silver loving cup which becomes the permanent property of the team winning it three years.

Competing with seven other teams, the Illinois team finished 38 points ahead of the Missouri team, which was second, and 102 points ahead of the third-place Iowa team. Kansas was fourth. In making this record, the Illinois boys won first in pork judging, third in mutton judging and fourth in beef judging. F. C. Olson, of the college animal husbandry department, coached the team.

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## Color Line Can Not Be Drawn With Safety On Apples, Marsh Says

Drawing the color line on yellow apples in favor of red ones seems to be popular practice among housewives, the busy business man who makes out his lunch on an apple and those who eat their apple a day "to keep the doctor away," but this discrimination is all to the disadvantages of the apple eater and user, says R. S. Marsh, horticulture extension specialist of the College of Agriculture, University of Illinois.

Turning down yellow apples for red ones not only makes it necessary sometimes to pay a higher price for red apples when yellow ones of equal quality could be obtained, but also shuts out of consideration yellow apples of superior quality, Marsh pointed out.

"At present market quotations in Chicago, St. Louis and Detroit, Jonathan apples, which are red, are bringing 50 to 75 cents more a bushel than Grimes, which are yellow. These two varieties both are of excellent flavor, despite the fact that they differ in color. As their season of harvest and storage is practically the same, they are always competing with one another, but most of the markets will pay 50 cents more for the Jonathans year after year.

"How unreliable mere color is as a basis for discriminating against one apple and choosing another was brought out in the case where a bushel of Grimes and a bushel of Ben Davis, which are red, were set out side by side with a sign over them inviting passersby to take an apple. Despite the fact that the Ben Davis is considered one of the poorest varieties for eating out of the hand, the bushel basket of them was emptied before a third of the Grimes, which is an excellently flavored variety, had been taken.

"The Grimes apple tree ranks as one of the best producers in Illinois and because it comes into bearing young and continues to produce a heavy annual crop that grades out a high percentage of No. 1 fruits, the variety will continue to be a money maker for fruit growers. Since 1804, the Grimes has proved its worth to the fruit industry. It is an apple model that is still popular, having already lasted ten times as long as a well known model of a certain popular automobile."

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## Simple Soil Management Practices Big Influence On Land Values

Small investments in such simple practices as the growing of legumes, crop rotation, the conservation and careful use of farm manures and the use of limestone and phosphate or combinations of both will double or triple the acre values of much land, from the investment point of view, Dr. F. C. Bauer, chief of soil experiment fields, College of Agriculture, University of Illinois, told Illinois bankers in their recent two-day agricultural short course at the college. Results from the college's historical Morrow plots and other soil fields were cited to prove the point. Careful analyses of results from these old plots strikingly illustrate the influence of better soil management practices in increasing land values, he said.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X November 30, 1927 Number 48

## Present Corn-Hog Ratio Indicates Fewer Market Hogs In 1928

One current tip that ought to help farmers guess the number of pigs they should get ready to raise next year is the indication that fewer hogs will be marketed at Chicago during the winter of 1928-1929 than will be the case during the present winter, says P. E. Johnston, of the farm organization and management department, College of Agriculture, University of Illinois.

This indication comes from the corn-hog ratio, which has been about 10 percent below normal since June, he explained. Studies made by the department show that a decrease of as much as 10 per cent below the average in the corn-hog ratio means that the number of hogs to be marketed the following year will average 8.8 per cent less than in the previous year.

Ordinarily, the fewer hogs that are marketed, the higher the price. Hence, the value of the corn-hog ratio in helping farmers make their guesses at this time of the year, he pointed out.

"The ratio in December also will have an important bearing on the number of hogs marketed in Chicago next year. Consequently, farmers do not need to decide on the number of sows which they will keep to farrow until a later time. Bred sows can be bought or sold up until February or March.

"The corn-hog ratio is probably the most important factor influencing the market supplies of hogs, and as such is worthy of study by progressive farmers. As implied by the name, the ratio expresses the relation between the price of corn and the price of hogs. When we say that the corn and hog ratio stands at 12, we mean that a farmer must sell 12 bushels of corn to get as much money as he would receive by selling 100 pounds of pork. A high ratio, such as 15, is favorable to hog production while a low ratio, such as 8, means that it is more profitable than usual to sell corn.

"Aside from the present corn-hog ratio, there is one other point that should be taken into consideration in trying to figure hog supplies next winter. Surveys made by the federal department of agriculture showed that farmers were intending to breed 30 per cent more sows for fall farrowing in 1927 than in 1926. The actual farrowings usually are less than intentions indicate, but this fact can be checked in December or January when the results of the fall pig survey are published. This survey comes in time for farmers to change the number of sows they will keep for spring farrow."

Bulletin No. 293, which may be obtained in abstract form from the agricultural college, discusses in detail the question of adjusting hog production to market demand.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## University Fowls Eat No Better Feeds Than Their Farm Relatives

There are no "collegiate" frills or fads about the way in which the 1,500 chickens on the farm of the College of Agriculture, University of Illinois, are fed, despite the fact that the birds have all been bred and raised on the grounds and have had their full share of exposure to a university atmosphere. This fact is the keynote of the system of feeding as outlined by H. H. Alp, poultry extension specialist of the College.

The kind and method of feeding often is governed by experimental and research work, but the birds are, as a rule, fed in a manner and on a ration which is applicable to average farm flocks, according to Alp.

"For instance, the dry mash which they are getting at the present time is composed of 195 pounds of ground yellow corn, 100 pounds of wheat bran, 100 pounds of wheat middlings, 100 pounds of meat scrap and 5 pounds of salt.

"The grain which they are getting is mixed in the proportion of 70 parts corn and 30 parts wheat. For green feed, the college chickens get swiss chard and mangel beets. They have plenty of water to drink and get all the grit and oyster shell they need."

Valuable tips in organizing and planning a better poultry business for 1928 can be gained not only from the system of feeding practised on the farm but also from other practices that are used there, in Alp's opinion. The poultry farm itself consists of about 35 acres. The location, just south of the main university campus, cannot be described as ideal, but it is, in most places, naturally well drained, has plenty of permanent shade and, due to a fertile soil, crops can be grown easily on all unused yards and rearing ranges, thus aiding in the sanitation program which is followed.

About 10 acres are used for permanent buildings, which include a main building, feed storage barn and 25 laying houses, the remaining acreage being used for three separate rearing ranges. The mature flock is made up chiefly of the three main breeds: Rhode Island Reds, Leghorns and Plymouth Rocks.

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## Gets 50 Per Cent Increase In Herd Production By Feeding Better

While many other dairymen were watching the production of their cows take the usual seasonal slump, Clyde Heuber, a member of the Boone County No. 1 Dairy Herd Improvement Association, turned to the feeding of a better balanced ration at the suggestion of the association tester and increased the butterfat yield of his herd 50 per cent in the short space of nine months, according to a report to the dairy extension service of the College of Agriculture, University of Illinois.

At the time the association was organized, Heuber's cows were averaging 20.3 pounds of fat each a month. After talking over his feeding problems with Montelle Boyd, tester in the association, Heuber started feeding a better balanced grain ration composed of 420 pounds of corn, 904 pounds of oats, 970 pounds of barley, 266 pounds of cottonseed meal and 350 pounds of linseed oil meal. In addition, liberal amounts of corn silage and clover and timothy hay have been fed when conditions emphasized their need. At the end of nine months from the time the association was formed the production of Heuber's cows had increased to more than 30 pounds of fat each a month.

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## State Champions Names In Fifteen Boys' And Girls' Club Projects

Rewarded for outstanding work done during the past year, 15 state champions have been selected by club officials of the College of Agriculture, University of Illinois, from among the 12,681 youngsters engaged in carrying on definite farm and home projects under the 4-H Club movement.

Included in the list of champions and their projects are: Lloyd McHatton, Baldwin, Randolph county, alfalfa; Thomas Chamberlain, Charleston, Coles county, dairy; Ralph Bivin, Palmyra, Macoupin county, sheep; Alice Mast, Quincy, Adams county, canning; Bitty Ball, Wenona, Marshall county, room improvement; Louise M. Riggins, Liberty, Adams county, poultry; Charles Engleman, Nokomis, Christian county, corn.

I. W. Cundiff, Arrowsmith, McLean county, garden; Bernice Stotmeister, Coal Valley, Henry county, bread; Florence Fry, Colusa, Hancock county, baking; Rose Mertes, Wenona, LaSalle county, meal planning; Herman Reustman, Minonk, Woodford county, sow and litter; Arthur Essington, Clifton, Iroquois county, baby beef; Mable Mohr, Normal, McLean county, clothing, and Edward Schneider, Hopedale, Tazewell county, gilt.

The youngest member of the group of new champions is 13-year-old Chamberlain, the state dairy champion, while the oldest is 20-year-old Reustman, state winner in the sow and litter project.

With 15 other outstanding club members of the state, the 15 champions comprised Illinois' delegation to the sixth national Boys' and Girls' Club Congress held in connection with the Chicago International Livestock Exposition.

Those joining the 15 champions in making up the delegation included: Albert Dozier, Pawnee, Sangamon county; Donald Dean, LaMoille, Bureau county; Thomas Robinson, Waterman, DeKalb county; Carroll Cassity, Oreana, Macon county; Lawrence Hockaday and Dan Shutter, both of Decatur, Macon county; Ralph Nelson, DeKalb, and Charles Nelson, Sandwich, both of DeKalb county; Ruth Boeker, Oakford, Menard county; Helen Wait, Jacksonville, Morgan county; Della Brown, Oakford, Menard county; Louise Anderson and Helen Meis, both of Pontiac, Livingston county; Wilma Mittelberg, Fowler, Adams county; Glen Wilson, Robinson, Crawford county, and Leafel Norton, also of Robinson.

The Illinois State Fair, railroads, packers, public utilities companies and other interested organizations paid the expenses of the individual youngsters to the Club Congress.

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## Barley Good Substitute For Corn In Controlling European Corn Borer

Barley is one of the substitute crops to which Illinois farmers probably will turn if the European corn borer gets to be a serious handicap to corn growing in this state. Like some other crops, barley is not so seriously injured by the borer as is corn. A new bulletin, No. 297, from the experiment station of the College of Agriculture, University of Illinois, deals with the growing of this crop and gives some test records on varieties of barley from Illinois.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X | December 7, 1927 | Number 49


## Record Competition Expected In Farmers' Week Seed Grain Show

More of the state's corn growers than ever before will bid for the corn "king" crown and a share of the $800 in cash prizes in the annual Illinois Seed Grain Show to be held next month in connection with the thirty-first annual Farmers' Week at the College of Agriculture, University of Illinois, J. C. Hackleman, superintendent of the show, predicts in his first announcement of the 1928 event.

Many farmers this past fall outdid themselves in the selection and storage of seed corn, because of the soft-corn scare and the threatened seed corn shortage, Hackleman pointed out. Consequently, there will be plenty of corn available for entry in the show, he said. Incidentally, the germination test, which makes the Illinois show unique among other corn shows, will be the first chance that many of the exhibitors will have to check up on the vitality and disease condition of their corn, he added.

Exhibitors will have until Saturday, December 24, to get their grain here. This advance in the date over previous years is made necessary by the earlier opening of the 1928 show. Farmers' Week not only comes earlier in the month this year, being scheduled for January 9 to 13, but also the grain show will open on the first day of the week, instead of on Wednesday, as has been the case in the past.

As in former years, $500 of the prize money will go to the senior classes and $300 to the junior classes, which have been provided for boys' and girls' corn club members of the state. There will be classes for soybeans, spring and winter wheat, oats and clover seed, in addition to those for white and yellow corn. Competition will be by sections of the state in both the adult and junior divisions and then the winners in these sections - northern, central and southern - will come together for the grand sweepstakes prizes.

Ralph Mason, Armington, Tazewell county, is the present corn "king" of the state, while Edwin Rentschler, Chestnut, Logan county, holds the title in the ranks of the boys' and girls' club members, these two having captured the top honors of the 1927 show.

Both the Illinois Bankers' Association and the Illinois Crop Improvement Association are again cooperating with the college in staging the show, the bankers' organization having posted the prize money.

As in former years, the annual school and examination for seed and grain judges will be held again this year in connection with Farmers' Week.

The annual meeting and banquet of the Illinois Crop Improvement Association will be held January 10, starting at 5:30 o'clock in the evening.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Dairymen Using Discovery That Soybeans About Equal Oil Meal

Dairymen are following up the discovery that soybeans are just about equal to linseed oil meal in the cow's ration and more herd owners than usual will feed them this year, it is believed by C. S. Rhode, dairy extension specialist of the College of Agriculture, University of Illinois. This will be sound, not only because the beans are a home-grown produce on many dairy farms, but also because it will open up a paying outlet for the increased production of this crop, he pointed out.

When cottonseed meal is worth $2 a hundred pounds, for instance, soybeans are worth $1.13 a bushel as a substitute and with linseed oil meal at $2, the beans have a value of $1.18. They are worth $1.21 a bushel as a substitute for gluten feed at $1.75 a hundred pounds. Of course, as the value of these high protein feeds mounts, the bushel value of the soybeans mounts.

"Beans should be ground when they are fed to dairy cattle," Rhode explained. "Their high oil content makes it hard to grind them alone, but it is easy to get around this by grinding them with corn or oats.

"When the roughage that the cows are getting is partly legume and partly non-legume, a good grain mixture can be made up from 500 pounds of corn and cob meal, 350 pounds of ground oats and 150 pounds of soybeans. When no legume hay is being fed as roughage, the grain mixture should be made up of 450 pounds of corn and cob meal, 300 pounds of soybeans, 150 pounds of cottonseed meal and 100 pounds of bran. When the roughage consists of legumes only, the way to make up the grain mixture is to mix 575 pounds of corn and cob meal, 400 pounds of ground oats and 100 pounds of soybeans.

"From 2½ to 3 pounds of these grain mixtures should be fed for each gallon of milk produced daily. The amount should be increased to 3½ pounds for Jerseys and Guernseys producing more than 25 pounds of milk daily."

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## Two New Year Objectives Set Up For Illinois' Poultry Industry

At least two New Year objectives already have been set up for Illinois' poultry industry. Well-bred chicks raised to maturity will be the goals sought in the extension work carried on by the College of Agriculture, University of Illinois, with farm poultry flock owners. As steps toward these goals, sanitation and better all around flocks are to be stressed in the poultry extension program.

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## Top Wether At International Was Sired By Former U. of I. Ram

Illinois was not without its share of the honor when the judges decided upon the grand championship wether in the fat sheep show of the last Chicago International Life Stock Exposition. The Shropshire lamb that won this honor for the North Dakota Agricultural College was sired by a ram bred and developed on the farm of the College of Agriculture, University of Illinois, and sold to the North Dakota institution two years ago.

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## Two Valuable Sires Sent To Butcher In Absence Of Herd Records

Two valuable purebred dairy sires belonging to members of the Will County No. 1 Dairy Herd Improvement Association were unknowingly sacrificed by their owners when they were sold for beef before definite records had been obtained as to their outstanding worth as breeding animals, according to a report from the association to the dairy extension service of the College of Agriculture, University of Illinois. As if to drive home the importance of such records, the worth of a third purebred sire in the association was discovered in time to save him from the butcher's block.

It was not until four daughters of his former Holstein herd sire recently completed a year's record that William Weller, the owner of one of the lost sires, realized that he had sold a valuable breeding bull. These four daughters, commencing their lactations at less than three years of age, produced an average of 6,970 pounds of milk and 307.3 pounds of fat. In contrast, their dams, as mature cows, averaged only 6,641 pounds of milk and 267.3 pounds of fat. In other words, these immature heifers each produced 40 pounds more fat than their dams did when mature, thus classifying their sire as a valuable bull worthy of more than a trip to the butcher.

Crystal Rock Johanna, formerly owned by John Cryder and Howard Phelps, likewise met an untimely death before his daughters had a chance to demonstrate his true worth.

H. W. Bischoff and Sons' sire, Sylvia of Lake View, is the sire which fortunately was saved until his daughters were given a chance to demonstrate their producing ability in the dairy herd improvement association. The two-year-old daughters of this sire, in three months, had an average production of 183.4 pounds of fat each, as compared to a yearly fat average of their mature dams of 414 pounds of fat.

The proving of three herd sires through the interpretation of association results is but one of the many advantages that the members in Will county realized by actively utilizing the services of the association, according to J. H. Brock, assistant in dairy extension at the agricultural college, where the work of these associations is supervised.

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## U. of I. Rambouillet Ram Has Most Uniform Fleece In Tests

"Hector", a purebred yearling Rambouillet ram in the flock of the College of Agriculture, University of Illinois, holds the distinction of having the most uniform fleece ever tested in the extensive wool measuring tests being conducted in the laboratories of the University of Wyoming. U. of I. 1258, a yearling ewe in the college flock, had the second finest fleece of any Rambouillet ever measured.

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## One Hundred Pounds Of Heavy Hogs Worth 11.4 Bushels Of Corn

Figures worked out by the farm organization and management department of the College of Agriculture, University of Illinois, show that as an average for a long period it takes 11.4 bushels of No. 2 mixed corn to bring as much money as 100 pounds of medium to choice heavy hogs at Chicago.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X | December 14, 1927 | Number 50


## Corps Of National Authorities Top List Of Farmers' Week Speakers

Two presidents of national farmers' organizations, a former president of a middle western university, two agricultural college deans, three farm paper editors, two rural economists and an English rural social worker are among the principal speakers for the afternoon and evening general sessions of the annual Farmers' Week to be held January 9 to 13 at the College of Agriculture, University of Illinois, it is announced by Dean H. W. Mumford.

The two chief executives of national farmers' organizations are S. H. Thompson, president of the American Farm Bureau Federation, and L. J. Taber, master of the national Grange. The former will speak the evening of January 11 on the subject, "A Few Comments on European Agriculture," while the latter will appear the following evening to discuss the subject, "Tomorrow's Challenge."

W. O. Thompson, former president of the Ohio State University, will be one of the first of the prominent speakers to appear on the Farmers' Week program. He is scheduled for the afternoon of January 9 on the subject, "The Responsibilities of Citizenship."

January 11 will bring two farm paper editors before the Farmers' Week audience. John F. Case, editor of the Missouri Ruralist, will speak in the afternoon, and C. V. Gregory, editor of Prairie Farmer, in the evening. A third editor, Samuel R. Guard, of the Breeder's Gazette, will speak before the Illinois Crop Improvement Association January 10.

Eugene Davenport, dean emeritus of the U. of I. College of Agriculture, will come back the evening of January 9 for a talk describing experiences on his Alaskan trip, while A. R. Mann, of the College of Agriculture, Cornell University, the other agricultural college dean on the program, will speak the evening of January 12 on the subject. "What Must Agricultural Progress Include."

Gilbert Gusler, market specialist of Chicago, and Dr. H. C. Taylor, of the institute for research in land economics and public utilities, Northwestern University, will head up the afternoon program on January 12, all of which will be devoted to marketing problems. Special phases of marketing will be discussed by staff members of the college.

Mrs. May Elliott Hobbs, musician and rural social worker and a conspicuous figure in rural movements in Great Britain, is scheduled for two talks. The first will be given the evening of January 9 and will deal with English and Scottish folk songs, while the second, on the subject, "The Cottage Gardens of England," will be given the afternoon of January 10.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Full Share Of Awards Taken Home By Illinois From Livestock Show

Holding its own with the best in this country and Canada, livestock bred and shown by the College of Agriculture, University of Illinois, won a total of 42 awards, including the reserve grand championship on fat steer, at the recent Chicago International Livestock Exposition, according to a summary of the winnings prepared by the animal husbandry department. In addition to winning the reserve grand championship in the fat steer classes, the 77 head of beef cattle, sheep, hogs and horses shown by the college collected one championship, four reserve championships and seven first prizes.

Each of these winnings was a testimonial for the approved methods of breeding, feeding and handling which are followed by the college animal husbandry department, inasmuch as the Illinois agricultural college shows only those animals which have been bred and developed on the University farm.

Jack Horner, the college's Aberdeen-Angus steer calf which won the reserve grand championship in the fat steer classes, proved such a strong contender for the grand championship and the premier honor of the exposition that Walter Biggar, of Dalbeattie, Scotland, who judged the fat steer classes, admitted the decision was the closest one he had ever had to make in his judging experience. Jack Horner's string of winnings included first prize in the class for Aberdeen-Angus senior calves, champion Aberdeen-Angus steer and reserve champion calf of all breeds and cross breds, in addition to the reserve grand championship.

Other winnings of the college cattle included first-prize and reserve champion steer of the Shorthorn breed, second and fifth on two other Aberdeen-Angus steers and second on group of three steers.

Six head of purebred Percheron draft horses, the first ever entered at the international by the agricultural college, came off with a total of 12 awards, including three first prizes.

In the sheep show the college's winnings included first prize and reserve championship on fat wether lamb in the Rambouillet breed, and first prize ram lamb in the classes for Rambouillet breeding sheep. Eleven lesser prizes were captured in the classes for fat and breeding sheep.

Not the least of the college's achievements was the share of honor gained by the institution when the grand champion wether of the entire fat sheep show was selected. The Shropshire lamb which captured this award for the North Dakota Agricultural College was sired by a ram which the U. of I. College of Agriculture sold to North Dakota two years ago.

The college had no animals entered in the classes for breeding hogs, but in the fat swine division the institution took six ribbons, including two seconds, two thirds and two fifths.

Charles B. Shuman, a senior in the College of Agriculture, brought one of the major honors of the international to Illinois when he was awarded first prize and the gold medal in the annual essay contest of the Chicago Saddle and Sirloin club. This is the second consecutive year that the U. of I. College of Agriculture has produced the writer of the gold medal essay. The subject of the contest this year was, "The Value of Financial Records to the Livestock Farmer." Shuman is a former Moultrie county farm boy but his parents have lived in Urbana since he entered the university.

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## Two Tractor And Gas Engine Short Courses Announced For January

Two tractor and gas engine short courses each lasting one week, have been arranged by the farm mechanics department of the College of Agriculture, University of Illinois for the benefit of the owners of the 70,000 tractors in this state, it is announced by R. I. Shawl, in charge of the courses. Following immediately after the annual Farmers' Week, the first course will be held January 16 to 21, while the second will be held the week of January 23 to 28. Popularity of these annual short courses has increased to the point where last year almost twice as many tractor owners and operators applied for admission as could be accommodated. There is room for 33 students in each of the courses.

Those enrolled for the work get the advantage of the equipment in the college's gas engine and tractor laboratory, thus adding to the practical nature of the courses. In this laboratory there are 10 popular makes of tractors, 12 tractor engines mounted on frames, 35 farm gas engines and a representative assortment of magnetos, carburetors, air cleaners and engine parts. Practical laboratory work covering engine and tractor construction, engine timing, make and break ignition, high tension ignition, carburetor study and adjustment, tractor and gas engine trouble work and tractor operation will take up from four to five hours a day during the course. Added to this will be three hours of lecture work each day in which will be explained the operation, principles of construction of engines, valves and valve timing, ignition, fuels, carburetors, lubrication and engine troubles. Motion pictures will be used to show many phases of power farming not covered during the lecture or laboratory periods.

The fee for the course is $2.50 for each student to cover the cost of materials used. Board and room will be about $10 for the week. Because of the limited number who can be accommodated in each of the courses, the department suggests that interested persons make application early.

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## Illinois Places First Bid For Trophy In Midwest Judging Contest

Illinois became a contender for permanent possession of the large silver challenge trophy offered by midwest poultry and egg shippers when the team of three students from the College of Agriculture, University of Illinois won first place in the eighth annual midwest intercollegiate poultry judging contest held in connection with the recent Coliseum Poultry show in Chicago. Illinois placed its name on the trophy for the first time when the U. of I. team collected a total of 2,961.7 points in the three divisions of the contest: production judging, exhibition judging and written examination on the standard of perfection. Missouri and Iowa State have each won the trophy twice and need only capture it once more for permanent possession. Other institutions besides Illinois with one leg on the trophy are Oklahoma Agricultural and Mechanical College, Michigan State College and Purdue University.

The winning Illinois team was coached by E. W. Henderson, a member of the animal husbandry department of the U. of I. College of Agriculture. Members of the team were M. O. North, a junior of El Paso; E. Booker, a senior, Tolono, and H. R. Ringler, a junior, Normal. North was the high all-around man in the three divisions of the contest thus winning $30 in cash and a $100 scholarship for graduate study. Booker took the gold medal for high individual score in production judging and was tied for first place in the written examination. Ringler was sixth in production judging and, with North, tied for eighth place in the written examination. All three members of the winning Illinois team received gold medals.

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X December 21, 1927 Number 51


## Farmers' Week Program Aims At Continued High Farm Efficiency

Evidence shows the present agricultural situation is not due to lack of productive efficiency on the part of farmers, nor is there likely to be a letup by Illinois farmers, judging from the importance which will be attached to the business end of farming during the coming annual Farmers' Week at the College of Agriculture, University of Illinois, January 9 to 13.

Early in the farm management sectional meetings farmers will have a chance to draw some lessons from the experiences of other farmers when M. L. Mosher speaks on the subject, "What Farm Records Have Shown 225 Farmers About Their Business." These farmers are those enrolled in the cooperative farm bureau - farm management service work in Livingston, McLean, Woodford and Tazewell counties. Mosher, of the college farm management department, is in charge of the field work on this project. He will speak on the Tuesday morning program. The following afternoon he will discuss, "Practices That Help Make the Farm A Success."

Following up these talks, H. C. M. Case, in charge of the college farm organization and management department, will discuss, "Planning the Farm for Success," and some successful farmer of Illinois will explain, "The Value of a Long-Time Farm Plan."

Farm prices and costs, live topics with farmers just now, will both be up for discussion. "How Prices Affect the Farmer's Income," will be discussed by P. E. Johnston, formerly a member of the farm management department, and, "Why Prices of Illinois Farm Products Change," by L. J. Norton, assistant chief in agricultural economics. "Three Years' Study of the Cost of Hog Production," will be the subject for R. H. Wilcox, of the farm management department, while, "Economic Aspects of Dairying in Illinois as Shown by Cost of Production Studies and Dairy Herd Improvement Associations," will be discussed jointly by J. B. Andrews and C. S. Rhode, both staff members of the college.

"Must Tenancy Mean an Unprogressive Agriculture?" will be answered by C. L. Stewart, chief in agricultural economics; "Equity in Farm Property Taxation," will be discussed by M. H. Hunter, of the College of Commerce; "Will We Have Corporation Farming?" by D. Howard Doane, of an agricultural service at St. Louis, Mo., and, "Farm Lease Helps," by R. R. Hudelson, extension specialist in farm organization and management.

In line with the greater effort which local and national farmers' organizations are making to get a better market for farm products, an entire afternoon is to be given over to marketing questions and problems. Dr. Charles L. Stewart, chief in agricultural economics, will preside during the sessions, which are to be held the afternoon of January 12.

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Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Short Course In Dairy Manufactures To Feature World Authority

With many practical authorities from the commercial field signed up as instructors, a short course in dairy manufactures is to be held January 9 to February 4 at the College of Agriculture, University of Illinois, according to an announcement by P. H. Tracy, of the dairy manufactures division. The course is expected to draw a capacity enrollment from the 5,000 men employed in the 600 dairy manufacturing plants of the state, he said.

Instruction in the course will be divided into four sections to enable dairy plants to send men only for those parts in which they are particularly interested. January 9 to 14 will be given over to a plant laboratory section, January 16 to 21 to butter-making, January 23 to 25 to market milk, and January 26 to February 4 to ice cream.

Included in the list of outside instructors who will assist the college staff members in the course is at least one world authority, O. F. Hunziker, formerly head of the dairy department, Purdue University, Lafayette, Indiana, and now connected with a commercial creamery company in Chicago. Recently he was called to New Zealand and Australia by the creamery associations of those countries.

Other experts scheduled for the course are N. W. Hepburn, formerly chief in dairy manufactures at the U. of I. College of Agriculture and now connected with a Peoria creamery; G. W. Putnam, of the Chicago Health Department; Paul Krueger, of the Illinois State Department of Health; L. N. Murch and F. W. Bouska, both commercial creamerymen of Chicago; H. C. Horneman, Danville commercial creameryman; Carl Hanson, prize butter-maker of a local commercial creamery; B. A. Stiritz, formerly a member of the college's dairy manufacturing division and now with a local creamery; Charles Holmes, of a local milk plant, and F. A. Gougler, poultry and egg marketing specialist of the I. A. A.

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## Illinois' Scorn For Corn Borer To Be Shown During Farm Week

Something of the scorn which Illinois authorities hold for the threatening European corn borer can be judged from the fact that this insect is the only one to be singled out as the subject for a separate and general session during the annual Farmers' Week at the College of Agriculture, University of Illinois, January 9 to 13. The whole of the regular afternoon general session on January 10 is to be given over to the borer and methods of controlling him.

Up to the present time in the corn borer fight, mechanical methods have been the most effective, and accordingly these will get a full share of attention on the program. Two different speakers are scheduled to discuss the subject, "Improvements in Mechanical Methods of Destroying the Corn Borer." They are C. O. Reed, professor of agricultural engineering at the Ohio State University, Columbus, and R. B. Gray, of the federal department of agriculture.

Director of the Illinois State Department of Agriculture, Springfield, has been scheduled for an address on the subject, "Illinois' Work on the Corn Borer Quarantine."

The opening talk of the special corn borer session will be by W. P. Flint, chief entomologist of the Illinois State Natural History, who will review the corn borer war during 1927. The thing that Illinois farmers are concerned about as the borer gets closer and closer to Illinois is the fate of their chief crop. Some of the questions on this are expected to be cleared up in the talk by George H. Dungan, assistant chief in crop production at the agricultural college, on the subject, "Corn Growing in the Borer Infested Region."

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## Farmer Cuts Limestone Bill $400 By Making Simple Test Of Soil

A saving of $400 worth of limestone is the reward which one Illinois farmer reaped for spending a few hours in collecting and testing soil samples from a 160-acre field instead of covering the whole area with limestone on the assumption that it was all acid, according to a case cited by C. M. Linsley, soils extension specialist of the College of Agriculture, University of Illinois. This instance is only one of several which has come to light in the soil testing project which the college is conducting throughout the state in cooperation with county farm advisers, he said.

Without making a detailed test of the soil on the field, this farmer ordered 500 tons of limestone for the 160 acres. Upon the suggestion of the farm adviser, the field was tested for acidity in a number of different spots. The results of this test showed that 70 acres of the 160 were sweet, or in other words, already contained enough limestone. Accordingly, the order was reduced from 500 to 300 tons of limestone. The other 200 tons, worth about $400, would have been wasted if applied to the 70 acres of sweet soil, Linsley pointed out.

"On the other hand, many farmers are throwing away high-priced clover and alfalfa seed on land that is too acid to grow these crops successfully. Farmers often complain that they can get a stand of clover, but that it either burns out during a hot dry spell after harvest or is killed by severe winters. In most cases, the real cause is the acidity of the soil.

"The soil testing project, which is designed to teach the farmer how to test his own soil, shows where and how much limestone is needed as well as where it is not needed. Under this plan the farmer is instructed how and where to collect samples from a 40-acre field. These samples are then brought into a meeting place where the farmer is shown how to test the samples for acidity. He is also instructed how to draw a map of the field showing the areas of the sweet and acid soil. This map not only shows where to apply the limestone, butalso the rate at which it should be applied."

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## Modern Tools, Efficiency Aids, To Be Featured Farmers' Week

Modern machinery, which has helped make the American farmer the most efficient producer of foodstuffs in the world, is to have its inning during the annual Farmers' Week, January 9 to 13, at the College of Agriculture, University of Illinois. As might be expected, a newcomer to the ranks of Illinois farm machines will head the list of implements which will merit a place on the program. This machine will be the combined harvester-thresher, which has made such a name for itself in the harvesting of Illinois small grains that farmers of this state have installed more than 300 of them in the past four years.

W. E. Riegel, of Tolono, who is a combine user and a member of the college's agronomy advisory committee, will preside at the farm mechanics sectional meetings when the combine is up for discussion.

Something of the role that modern machinery has taken in helping farmers battle one of the worst insect pests of all times - the European corn borer - will be explained during the corn borer sessions on the afternoon of January 10.

Tractors, of which there are some 70,000 in Illinois, are not to be crowded off the program by some of the newer implements. In a special tractor session on the morning of January 11, R. I. Shawl, of the farm mechanics department, will speak on, "Diagnosing Tractor Troubles, Mechanical Troubles, Lubrication, Carburation and Ignition."

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# The Extension Messenger

COLLEGE OF AGRICULTURE—UNIVERSITY OF ILLINOIS

Timely Notes for Farm Advisers and others from the Agricultural College, Experiment Station, and Extension Service

Volume X December 28, 1927 Number 52

## Dean Mumford Believes Farmers' New-Year Outlook Not All Black

While prosperity for the corn belt farmer is not just around the corner waiting to be ushered in with the new year, there are at least five bright spots to keep the outlook from being all black as the new season opens, Dean H. W. Mumford, of the College of Agriculture, University of Illinois, says in a New Year's statement. Intelligent interest by other industries in the agricultural depression, increased efficiency on the part of the individual farmer, a shift of surplus labor from the farm to the city, broader opportunities for improved standards of living on the farm and better farm organizations are seen by Dean Mumford as five things brightening the outlook for farmers during the coming year.

"Social and economic equality for farming and farmers is a challenge to every citizen, be he farmer, banker or business man, to make such contributions in thought and action as may add something to the desired result. The prize of a readjusted agriculture with restored opportunity to young farmers is so great that I have faith in the forces at work in its accomplishment," Dean Mumford said.

Four different reports on the agricultural situation made within the past few years by different interests are cited by Dean Mumford as evidence that "it is doubtful if other industries have ever taken as intelligent interest in an agricultural depression as they have and are taking in this one." Commenting on the increased efficiency of the individual farmer, he said, "It can not be successfully maintained that the present agricultural distress of farmers in general is due to their inefficiency." The shift of population from the farm to the city is held by Dean Mumford to be a good thing for Agriculture, because, "agriculture needs fewer rather than more workers. Farming is not benefited by having to act as the haven for the unemployed." Turning to the question of farm organizations, he continued, "I believe it is true that there were never as many farmers organized who had an intelligent reason for being organized as at the present time. In spite of the criticism that farmers can not agree on what they want, the facts are that they agree about as well, probably better, than any other six million people who could be assembled and they are making encouraging progress in their ability to cooperate and work together."

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## Thirty Cows Already Qualified For 500-Pound Butterfat Club

With the last lap of the race still to be run, 30 Illinois dairy cows in 14 different counties of the state have qualified for membership in the Illinois 500-Pound Butterfat Cow club, thereby winning the coveted gold medal award of the club for their 24 owners, it was announced today by C. S. Rhode, dairy extension specialist of the College of Agriculture, University of Illinois. Thirty-two other heavy milkers have a chance to get into the select group if they can add the necessary poundage to their butterfat production in the final month. Ogle county, with five, leads the list of 14 counties represented by the 30 cows which already have qualified for membership in the club. Moultrie county claims four of them and Kane and Will counties three each. Stephenson, Crawford, McHenry, Knox and Cook counties each have two cows in the group, while JoDaviess, Adams, Peoria, McLean and Henry counties each have one.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*.

## Health of Stock Should Be Guide In Placing Orders For Chicks

Baby chick orders, many of which are already being placed for the coming season, will run up heavy losses for the farmers and flock owners who get the chicks unless every possible precaution is taken to get healthy, vigorous stock and then give it a fair start under sanitary conditions, says Dr. Robert Graham, chief in animal pathology and hygiene at the College of Agriculture, University of Illinois.

"Chick disease starts in the egg. The first essential, therefore, in success with baby chicks is strong, healthy, disease-free parent stock. Thousands of flocks in Illinois have been tested for tuberculosis and bacillary white diarrhea, two of the most serious diseases, in a disease prevention program fostered by owners and hatcherymen under rules and regulations of the state department of agriculture. Flocks also have been inspected by state men to insure quality. Chicks from such tested stock may not be absolutely free from disease, but other things being equal, they generally are a better value than chicks from untested stock. It should be pointed out in this connection, however, that the term 'blood tested chicks' is a misstatement. The flocks that furnish the eggs are tested, but the chicks are not. Naturally, the percentage of chicks that live is greater from tested than from untested stock.

"It is advisable to start the chicks under the sanitation program advocated by the extension service of the agricultural college, inasmuch as sanitation is the key to healthy poultry of all ages. Proper feeding and housing, which are features of this program, favorably influence health and vigor. This sanitation program suggests that the new chicks be put in a clean, disinfected brooder. Furthermore, the brooder should be on new ground where fowls have not been for one year. A clean grass range is desirable. The brooder house should be cleaned every week and the chicks kept away from mature fowls. Both the feeding and brooding should be done carefully to avoid dietary weakness or setbacks from overheating or chilling. Poor management often is the starting point for disease outbreaks."

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## Sangamon County Leads State In Production Of 59 Ton Litters

With a Sangamon county entry winning the state championship, 59 litters of pigs this past year qualified in the Illinois ton-litter project by reaching a weight of one ton or more each by the time they were six months old, thereby winning for their owners the coveted official state ton-litter medal, according to an announcement by W. H. Smith, leader of farm advisers at the College of Agriculture, University of Illinois, and supervisor of the project. The 59 litters weighed a total of 141,203 pounds. The state championship litter was owned by George W. Leka, Illiopolis, and contained 13 pigs that were fed for a total weight of 3,167.5 pounds, or more than a ton and a half, by the time they were six months old. Sangamon county also outdistanced 19 other counties of the state in numbers of ton litters this year, 13 coming from that county. Bureau county, which led the state in 1926 with 12 ton litters, was not entered this year. Pike and Morgan counties each landed four litters this year, while Carroll county was close behind with three.

In general, those who succeeded in producing ton litters practiced systematic full feeding of well balanced rations consisting primarily of corn and such supplements as tankage and skimmilk, together with the use of legume pasture, Smith said. Sanitation also was practiced in a majority of cases, he added. More than half of the litters which qualified had both a purebred sire and purebred dam, while 15 other litters were sired by purebred boars.

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## Illinois Cited For Early Returns Made From Purnell Act Funds

Credit for producing one of the first farm research bulletins under the national Purnell act, passed to support more work in the social, economic and marketing fields by the experiment stations in the country, is given to the experiment station of the College of Agriculture, University of Illinois by an editorial writer in a recent issue of a national farm journal.

The research bulletin referred to in the editorial statement is, "Costs of Storing Corn on the Farm." It was written by L. F. Rickey, grain marketing specialist of the college, for the purpose of helping the farmer determine for himself the best time to sell corn, under the conditions existing on his own farm.

After pointing out that the publication is one of the first Purnell bulletins in the field, the farm journal editorial writer adds, "It sets a high mark for practical helpfulness to the farmer. It is true that the conclusions are based partly on work that was started a good many years ago, but that shows only that the station was traveling in the right direction.

"The data and examples of methods of determining losses are so well presented in this Illinois station bulletin that the farmer can work out his problem at home pretty accurately. It is the sort of bulletin that helps the practical farmer."

The subject involved is only one of 20 or more marketing problems on which the Illinois experiment station is working as a result of the increased funds now available under the Purnell act.

These 20 or more studies deal with livestock shipping associations in Illinois, the quality and composition of beef, farm grown supplements to corn for pork production, the marketing of a number of seeds and grains, cream and milk marketing, factors which make for successful farming, marketing of fruits and vegetables and the vitamine content of certain cereal food products.

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## Electricity To Rank With Other "Necessities" Farmers' Week

That electricity is changing from a fad to a necessity in the scheme of better living conditions on the farm is indicated by the fact that during the coming thirty-first annual Farmers' Week, January 9 to 13, at the College of Agriculture, University of Illinois an entire day of the farm mechanics sectional meetings is to be given over to the uses and advantages of farm electrical power. Rural electrification studies which the college has made on ten Champaign county farms, in cooperation with Illinois power companies and other interested agencies, will be drawn upon for many of the facts and pointers. The session is scheduled for Wednesday, January 11.

What farm women themselves think of electricity after having tried it for a while will be the opening topic of the discussion. Mrs. Harry Riefsteck, one of the ten farm women who have cooperated with the college in its study will speak on the subject, "Electricity, A New Servant in the Farm Home." Other speakers will include F. C. Kingsley, of the college farm mechanics department; Miss Carlotta Ford and Miss M. Attie Souder, both members of the college home economics department; E. W. Lehmann, head of the farm mechanics department, and J. F. McCarthy, of the Central Illinois Public Service Company.

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